FLIGHT MAGAZINE

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MAY 1961

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PIPER AZTEC

(See page 28)

ATTENTION!

OWNERS OF BEECH, CESSNA, AND PIPER AIRCRAFT

NOW YOU CAN GET BETTER PERFORMANCE AND EXTRA ENGINE PROTECTION WITH A NEW FRAM OIL FILTER!

For reliable, dependable engine performance, Fram Oil Filters are FAA Approved for most light aircraft and available as optional equipment on most models of Beech, Cessna and Piper Aircraft. Filters are also available for previous models of these and other light aircraft.

For about $50 per engine, a Fram Filter can be completely installed in your plane. Along with greater engine protection and better performance, a Fram Oil Filter means real economy. Here's what one Airplane Service Agency reports on a Fram Oil Filter installation:

"Our engine overhaul department estimates that the reduction in costs of parts replacement on this engine is approximately $140.00...the saving in cost for oil through 800 hours amounts to $88.40. A total saving of $228.40 attributable directly to the Fram Oil Filter. We are strongly recommending installation of FRAM PB55-1 Oil Filters to all of our customers."

Contact your local Airplane Service Agency for installation or write Fram Corporation, Providence 16, R. I.

YOUR FIRST LINE OF ENGINE PROTECTION

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EVERY 20 SECONDS

somewhere in the world a ROLLS-ROYCE turbine powered airliner takes off

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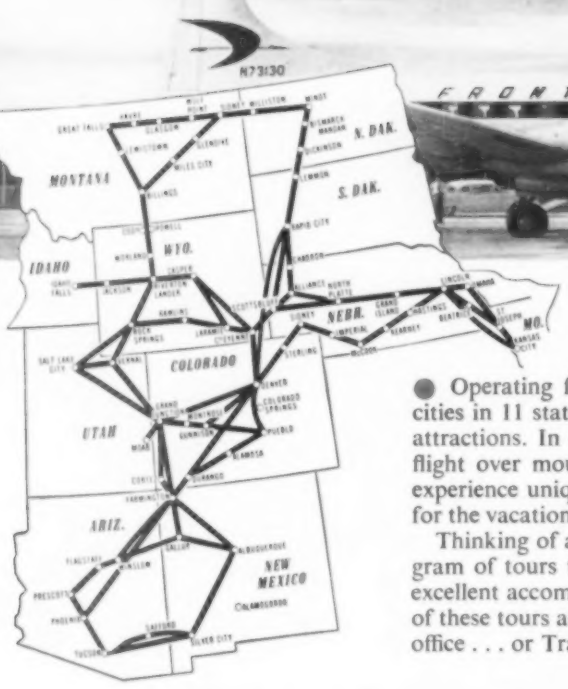

A radar-equipped Convair Sunliner refueled with high performance Phillips 66 Aviation Gasoline, pulls away from the handsome air terminal at Cheyenne, Wyoming. Frontier relies almost exclusively on Phillips 66 Aviation Fuels.

● Operating from Montana to Mexico and Kansas to Utah (presently 64 cities in 11 states), Frontier flies to and from many of the nation's top scenic attractions. In comfortably appointed Super DC-3's or Convairs, a Frontier flight over mountain, desert, and plain can be an awe-inspiring and scenic experience unique in itself. For the business man it's a relaxing interlude . . . for the vacationer, a fitting beginning for the enjoyment ahead.

Thinking of a holiday? Frontier Airlines offers "Vacation West" . . . a program of tours to some outstanding scenic attractions. All arrangements and excellent accommodations are made in advance at special budget prices. Four of these tours are described below. For full details, contact a Frontier Airlines office . . . or Travel Agent.

FOUR POPULAR FRONTIER TOURS

YELLOWSTONE PARK

. . . a wonderful opportunity to see all the wonders of the nation's most popular National Park. A leisurely, exciting tour—this will be a standout in your memory for years. (2½ days.)

GRAND CANYON

. . . tour one of the wonders of the world. Exploring this giant chasm with its ever-changing scenery will remain one of the highlights of your travels for the rest of your life. (2 days.)

MT. RUSHMORE

. . . visit the quiet, relaxing atmosphere of South Dakota's renowned Black Hills. See the famous "faces on the mountainside"—you'll cherish every minute of this exciting trip. (1 day.)

MESA VERDE

. . . a fascinating trip, exploring the Indian ruins and cliff dwellings of Southwest Colorado. Ride the narrow-gauge railroad through the mountains to historic old mining towns. (2 days.)

AVIATION DIVISION • PHILLIPS PETROLEUM COMPANY • BARTLESVILLE, OKLAHOMA

PHILLIPS 66

AIR Report

Significant Trends and News

AFTER BROAD UPTURN IN BUSINESS AIRCRAFT DEMAND during recent weeks, Cessna Aircraft has scheduled a sharp increase in production during May, June and July. The upturn followed a slump during the hard-winter months of January and February.

CESSNA AIRCRAFT SALES for the first half of the firm's 1961 fiscal year ending March 31 totaled $47.5 million, down from $56.3 million for the same 1960 period, with commercial aircraft sales for the 6 months down to $27.7 million from $30.6 for the same period last year. Reviewing the general economic picture, Dwane Wallace, Cessna president, said that sales and earnings would not meet last year's level, adding "it is difficult to make a prediction of year-end results until we see the extent of the present pickup in retail sales." He reported good reception of Cessna's newest aircraft model, the 185 Skywagon 6-place workplane.

NATIONAL AIRPORT PLAN FOR 1961, submitted by the FAA to Congress last month, recommended construction of 413 new general aviation airports and 52 air carrier airports and listed 2,834 airports needing improvements. Cost of the projects would be about $1.1 billion over a 5-year period, $900 million being for site purchasing and preparation and paving of runways, taxiways and aprons while the remaining $200 million would be for installing runway and guidance lighting, building or improving FAA control towers and establishing public use facilities. The FAA said the improvements are needed to provide for present and future air traffic and for increasing use of new high-performance aircraft. It predicted the number of airline passengers will increase from 59 million this year to 81 million by 1966, with general aviation increasing from this year's 13 million flying hours to 16.7 million flying hours in 1966.

LOCKHEED AIRCRAFT SERVICE has been appointed by Convair as a maintenance and service center for Convair 880 and 990 jet transports. LAS already services Boeing, Douglas and Caravelle jet transports.

WORLD PARACHUTING CHAMPIONSHIPS will be conducted at Orange, Mass., in August, 1962, with at least 15 nations competing. The contests have been held behind the Iron Curtain for the last six years and Russia, defending world champion, originally opposed the invitation of the United States.

U. S. NAVY will require more commercial overhaul and maintenance of its aircraft, it was stated during the National Aeronautical Services Association meeting in Washington last month.

FEDERAL AVIATION AGENCY has eased eye standards for airline and commercial pilots. Studies revealed a certain degree of eye deviation will still permit a pilot's eyes to form a single image and the FAA Civil Air Surgeon may issue a medical certificate if the applicant undergoes examination by a qualified eye specialist and shows he can compensate for the deviation and it will not affect flight safety. . . . **AIRCRAFT BRANCH** has been activated by FAA in its Bureau of Facilities and Materiel. It will have responsibility for acquisition and maintaining FAA's aircraft fleet. W. G. Shreve, Jr., heads the unit, with Charles Pfrommer as chief of the airframe-engine section and Vernon Dutton, chief of the avionics sections.

BELL HELICOPTER COMPANY has an order from the Australian government for $4 million worth of turbine-powered commercial Model 204B helicopters. They will be used for search and rescue work by the Royal Australian Air Force. This is the first export sale of the new Bell copter and additional orders from other areas are expected.

(Continued on page 42)

FLIGHT MAGAZINE

MAY, 1961 VOL. 50, No. 5

THIS MONTH'S COVER shows a 1961 Piper Aztec on a desert road near El Paso, as photographed by Southwest Sky Rangers, Piper distributor. This is the Aztec used by Bill Strohmeier of Piper and George E. Haddaway of FLIGHT MAGAZINE on a trip to Baja California described in the article on page 28. Rugged Aztec was operated from several improvised landing strips in rough desert country.

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Just Among Ourselves—EDITORIALS: WANTED—ACTION; TRIBUTE TO AN AIRPORT MAN 13

Pilot Pointers—BY FRED K. DICK—VIEWS FROM THE COCKPIT . . . 16

500-Mph. Jet Commander for Business Flying—FIRST DETAILS OF NEW TWIN FOR WHICH ORDERS ARE BEING ACCEPTED 23

DeHavilland's Executive Jet; Douglas-Piaggio Utility Jet Design—TWIN-JET BUSINESS AIRCRAFT DESIGNS 26

Portland's New Beechcraft Facility—FLIGHTCRAFT OPENS $500,000 BUSINESS FLYING TERMINAL 27

Aztec to Mexico—BY GEORGE E. HADDAWAY—FAST TWIN WITH BIG PAYLOAD BRINGS DISTANT RESORTS INTO EASY REACH 28

Fuel Injection, Price Cut for New Travel Air—BETTER AIRPLANE FOR LESS 30

Every Pilot Needs Oxygen—BY JAMES B. ARMSTRONG—EASY TO UNDERSTAND REASONS WHY YOU NEED SUPPLEMENTARY OXYGEN ALOFT 39

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'Automatic' 680F Commander—WORLD'S MOST ELABORATELY-EQUIPPED AERO COMMANDER 46

New Business in the Hangar—NATIONWIDE ROUNDUP OF INTERESTING DEVELOPMENTS IN BUSINESS FLYING 58

FLIGHT MAGAZINE, May, 1961, Vol. 50, No. 5. Published Monthly. Publication Office, P. O. Box 750 (2700 N. Haskell Ave.), Dallas, Texas. Price 50 cents single copy. Subscription rates: United States, one year, $4.00; two years, $6.00; three years, $7.50. Established February, 1934. Entered as second-class matter at the Post Office, Dallas, under the act of March 3, 1879. Copyright, 1961, by Air Review Publishing Corporation.

Designed and built to meet maximum specifications of pilots and passengers, the Beechcraft Queen Air can fly at speeds up to 239 mph, carries 6 or 7 people in luxurious comfort and quiet. Its folding air-stair door provides easy entry and exit. Optimum range, with fuel reserve, is over 1,200 miles. Supercharged fuel injection engines.

Big separate pilot compartment offers unsurpassed comfort and visibility. Flight-planned instrument panel.

Even long trips seem short in the quiet, relaxing Queen Air cabin. Sliding door privacy for pilots and passengers.

Completely private lavatory. Big inside baggage compartment is easily and quickly accessible in flight.

How To Sell The "Boss" A Beechcraft Queen Air:

The "boss" may be the board of directors, a department head, or maybe he's you. In any event, you owe it to the "boss" to learn all the advantages of the Beechcraft Queen Air—advantages that no other aircraft today can offer. For example:

1. **Roominess for both pilots and passengers.** And sliding door privacy for both. Center aisle. Freedom to move about, and room to stretch.

2. **"Man-type" comfort.** Big, deep-cushioned individual reclining chairs in which to work in comfort, or to relax and snooze in peace and quiet after a hard day's work. Private lavatory.

3. **Extra utility and performance.** The Queen Air's 2 powerful supercharged fuel injection engines give you power to spare to top terrain and most weather with ease, plus precise fuel metering, smoother running, longer engine life and complete freedom from carburetor icing problems. Jato power is available, too, if you want it.

4. **All-weather usefulness** with custom radar and de-icing equipment, plus a wide range of factory-installed radio and navigation equipment.

5. **Extra rugged construction** that lets you operate into and out of small unimproved fields with confidence and keeps maintenance costs down.

Why not get all the facts—and a demonstration from your Beechcraft distributor or dealer—soon? There's no better time than now!

Write today for latest information on low-cost Beech leasing and financing plans. Address: Beech Acceptance Corp., Wichita 1, Kansas, U. S. A.

Beechcraft

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

Speeds up to 230 mph make the new Beechcraft Baron a real "get there in a hurry" airplane. It can carry 5 big people and their baggage over 1,000 miles non-stop and still have a fuel reserve. Yet it's amazingly easy to fly.

New Continental 260 hp fuel injection engines give you more power, easier starting in any weather, precise fuel metering for extra fuel economy—plus complete freedom from carburetor icing.

Big "flight-planned" panel has instruments and controls located for maximum convenience. There's plenty of room, too, for extra nav-com equipment.

All-New Beechcraft Baron... Fast, Sleek, Roomy!

No matter how you compare the exciting new Beechcraft Model 55 Baron with other business twins in its size and power class, it doesn't take you long to realize that this airplane simply has no equal among its competitors.

Take speed, for example. The Baron has a wide choice of power settings for speeds up to 230 mph. How about range? The Baron can fly over 1,200 miles non-stop and still have a fuel reserve. What about useful load? The new Baron can carry 1,920 pounds of fuel, passengers, baggage and equipment. And, even at full gross weight, it can clear a 50-ft. obstacle on take-off in 1,255 ft.!

Inside, the Baron has room for 5 big people to relax in typical Beechcraft comfort in individually reclining seats. Naturally, there's plenty of headroom, hiproom and legroom. Super soundproofing makes conversation easy. Big ultra-violet windshield and huge oversized windows give you unmatched visibility on the ground or in the air.

A new ventilation system and big 50,000 BTU heating system lets you tailor-make your climate as you go. And, like all Beechcrafts, the Baron is ruggedly built to give you extra years of reliable, low-cost operation.

But the best way to evaluate the new Beechcraft Baron is to accept the invitation of Beechcraft distributors and dealers to see and fly this airplane yourself. Why not make arrangements now to be among the first pilots in your area to fly the new Beechcraft Baron.

Write today for latest information on low-cost Beech leasing and financing plans. Address: Beech Acceptance Corp., Wichita 1, Kansas, U. S. A.

Beechcraft

BEECHCRAFTS ARE THE AIR FLEET OF AMERICAN BUSINESS

Doesn't a **BELL** *belong in your fleet?*

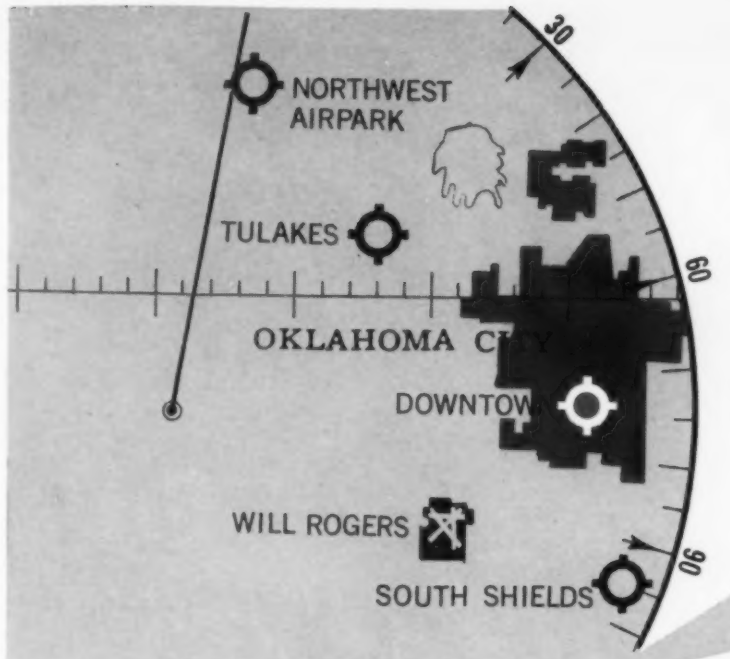
Probably the average flight of your fleet in 1961 will be less than 200 miles*. . . right in the ideal range of the Bell helicopter. Then, shouldn't you add a Bell in '61?

Hundreds of organizations are increasing their profit potential because they learned the facts about helicopters. Their cost. Their use. Their safety. Let Bell make a free analysis of *your* organization's air transportation requirements. Here every facet of the *go-everywhere* ability of a Bell will be applied to your needs. Bell maintenance and operating costs . . the lowest of all helicopters . . will be related to your over-all transportation expense. In all, you will get a complete picture of how a Bell *could* . . or could not . . profitably fit into your operations. Write Commercial Sales Manager, Dept. 411E, P. O. Box 482, Fort Worth 1, Texas.

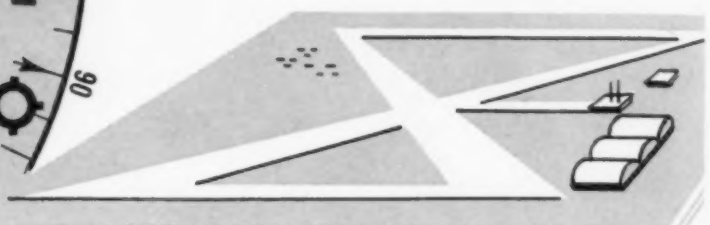
**Latest industry statistics show average flight to be 211 miles, including general and commercial airline flights.*

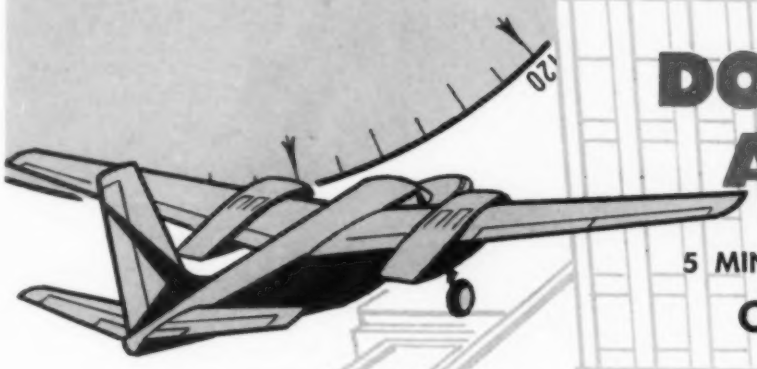
BELL HELICOPTER COMPANY

FORT WORTH, TEXAS • A DIVISION OF BELL AEROSPACE CORPORATION • A textron COMPANY



IT'S ALMOST LIKE LANDING ON YOUR HOTEL





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Economy	Mooney Mark 21	Beech Debonair		Cessna 210		Piper 250 Comanche	
Initial Cost (Standard Equipment)	$15,995	$21,750		$23,450		$20,485	
Initial Cost Mark 21		—15,995		—15,995		—15,995	
Initial Saving	→		$5,755		$7,455		4,490
Total Hourly Operating Cost for (300 Hrs./Yr.)	$16.97	$24.42		$20.90		$25.90	
First Year (300 Hrs. Operation) Mark 21 Saves You		$7.45		$3.93		$8.93	
(Difference between hourly cost multiplied by 300)	→	x300	$2,235	x300	$1,179	x300	$2,679
Total Saving First Year to Mark 21 Owners	→		$7,990		$8,634		$7,169
Total Saving to Mark 21 Owners Over 5 Year Period * (Initial saving & 5 years' operating savings)	→		$16,930		$13,350		$17,885

See your Mooney distributor or dealer now.

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ARKANSAS
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Auburn—Placer Flying Service
Bakersfield—Kern Mooney Aviation, Inc.
Fresno—Aircraft Enterprises
Hayward—Western Aircraft & Engine Co.
Long Beach—Corporate Aircraft Assoc.
Santa Paula—Bassett Flying Service
Santee—Santee Air, Inc.

COLORADO
Longmont—Mile-Hi-Mooney, Inc.

CONNECTICUT
Darien—Conn Mooney Sales

FLORIDA
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Springfield—Capitol Aviation, Inc.

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Creston—United Flying Service
Fort Madison—Bullard Trailer Sales
Sioux City—Airways Service, Inc.

KANSAS
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Wichita—Flournoy Flying Service

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Monroe—North Louisiana Aero

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NORTH CAROLINA
Charlotte—Smith Regal Flying Service
Rocky Mount—Harmon Mooney Sales

NORTH DAKOTA
Hettinger—Hettinger Air Service
Minot—Pietsch Flying Service
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Brookings—Western Aero, Inc.
Grants Pass—H. F. Shaw

PENNSYLVANIA
Lancaster—Garden Spot Airpark, Inc.
McDonald—Campbell Air Service

SOUTH CAROLINA
Greenville—American Aviation Service

TEXAS
Brownsville—Hughston Flying Service
Corpus Christi—International Aviation
Dallas—Mustang Aviation, Inc.
Electra—Parks Mooney Sales
El Paso—El Paso Mooney Sales

TEXAS—Cont'd.
Friendswood—Winsett Aviation
Houston—Bridge Aviation, Inc.
Midland—West Texas Flying Service

UTAH
Ogden—Aircraft Sales Company

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Omak—Omak Aircraft Sales
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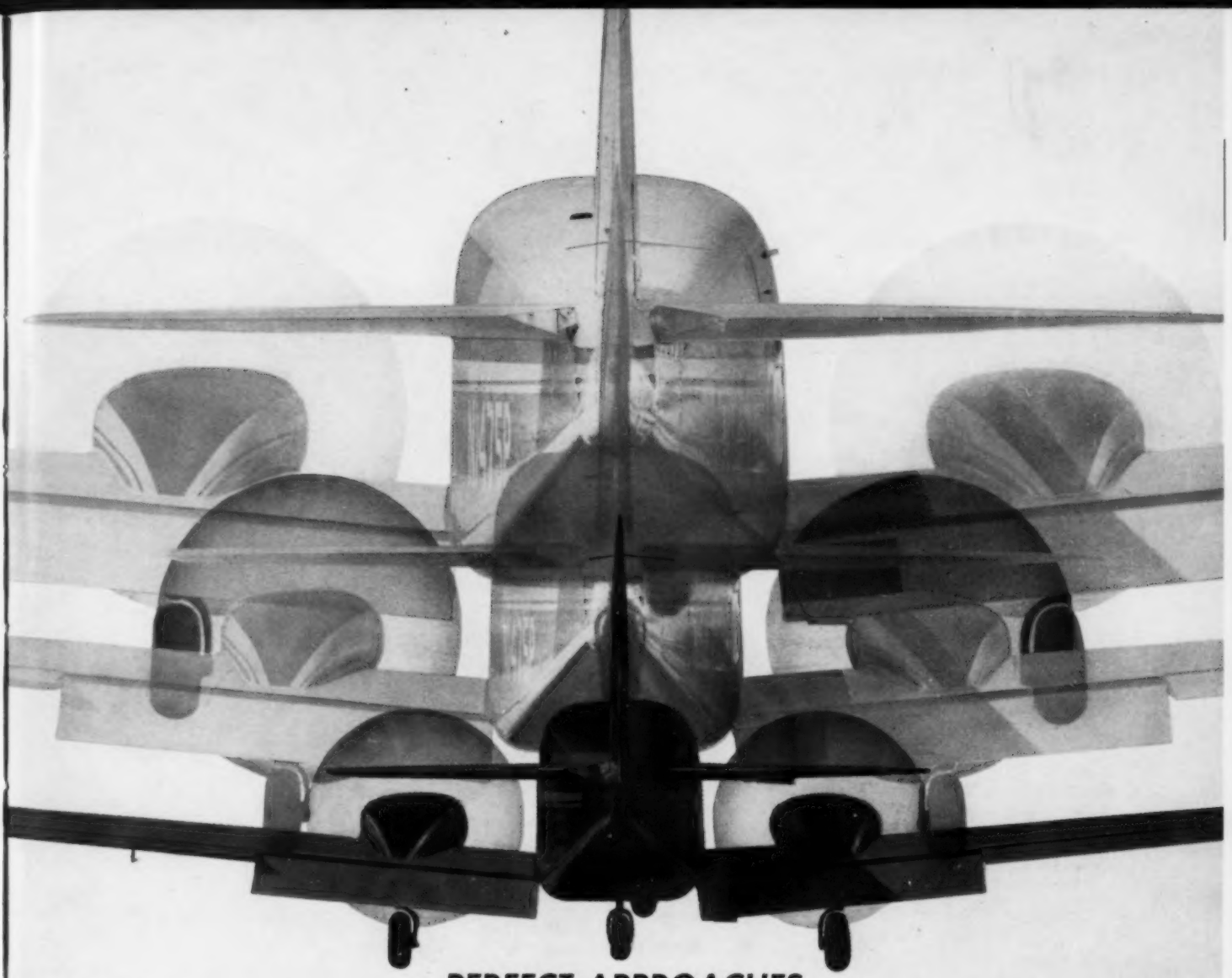
MOONEY AIRCRAFT, INC. *Kerrville, Texas*



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Collins new 344D-2 VOR/ILS Instrumentation Unit features glideslope indication in the flight proven Collins VOR/LOC instrument. Redesigned card-type construction, transistorized audio, greatly improved, self-contained instrumentation and power supply circuits result in reduced weight and low power consumption. ☐ Used with the popular Collins 51X-3 VHF Receiver and 51V-3 Glideslope Receiver, the 344D-2 permits precision ILS approaches with greater ease and greater safety. It weighs only 2.6 lbs. and is FAA-TSO'd. Contact your Collins distributor, or write direct for literature.

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SALUTE!

To Our Teammates on the Supply Line

AIRCRAFTSMEN, INC., **Will Rogers Field, Oklahoma City, Oklahoma.**

SALUTE! For 32 years, Aircraftsmen has shown the brand of get-up-and-go synonymous with Sooner State tradition. It also sets an enviable pace at Amarillo, Texas. As distributor, Aircraftsmen represents Beech, Continental, Lycoming and the makers of top accessories and radio gear. In addition, the firm designs, fabricates and markets a variety of custom-made airplane and engine improvements. The firm's service is noted for skill and friendliness, led by Norman L. Blake, president; Gene Morris, vice president – parts; Otto O. Hess, Jr., vice president; Ray Winstone, purchasing agent, and Larry P. Reed, shop foreman. Southwest Airmotive sells them AC, Aeroquip, AN hardware, Exide, Hamilton Standard, P&WA, Red Bank, Scintilla, Stromberg, and Utica.

INTER-AMERICA AVIATION MODIFICATION CENTER, **Meacham Field, Fort Worth, Texas.**

SALUTE! The "Horton touch" in custom craftsmanship is known wherever there are flyers who appreciate quality, reliability, comfort, and beauty. Horton-helped aircraft of every type and size are seen today throughout the Free World. Shown at right is one of four DC-6s which Inter-America is modifying and improving for first-class, luxury service by Loide Aereo Nacional, domestic Brazilian airline. By the plane, left to right, are Bill Young, chief inspector; Dorthe Anne Horton, co-owner with her husband, Bill, of both Inter-America and Horton-Horton, and Ray Beck, general manager. Southwest Airmotive supplies this notable firm with Aeroquip, AN hardware, Eveready, Goodrich, Grimes, Lord, Red Bank, and 3M.

NORTH LOUISIANA AERO CORP., **Selman Field, Monroe, Louisiana.**

SALUTE! It was a Big Day for North Louisiana Aero when, as area distributor, its first all-metal Mark 21 Mooney was received by, left to right, Copelen Bradley, service manager; Don R. Holloway, sales manager, and Bob Willis, operations manager. Sale of this fine, new airplane further boosts an already-versatile operation that includes 24-hour service and maintenance, overhaul, pilot training (FAA and VA approved), agricultural flying, and single-and-multi-engine charter. There are ample hangar and tie-down facilities, with 80, 91, and 100 octane fuel – plus loads of hospitality! President Fred Huenefeld, Jr., Secretary-Treasurer Herschel Gentry, Jr., and their capable staff, look to Southwest Airmotive for AN hardware, AC, Dow Corning, Eveready, Grimes, Lycoming, and Scintilla.

THE DISTRIBUTION DIVISION

Southwest Airmotive Company

Serving America's Heartland with Flying's Finest Supplies

KANSAS CITY • ST. LOUIS • DALLAS • DENVER • HOUSTON

Just among ourselves

Wanted: — ACTION

AT the direction of President John F. Kennedy, Administrator Najeeb Halaby of the Federal Aviation Agency, has announced the formation of two new task forces. Their jobs: to formulate a blueprint for the nation's aviation developments in the 1960's.

One is to be known as "Project Horizon" and will study and recommend national aviation goals for the period 1961 to 1970.

A technical task force known as "Project Beacon" will study the perennial problem of air traffic management and "recommend a system to insure the safe and efficient utilization of the nation's airspace."

It seems to us there's been far too much emphasis on studying and researching aviation in recent years and not enough action in applying what we already know about our problems. We agree that some of the problems are not simple but there certainly isn't much solace or appeal in the news that two new commissions have been appointed to study and to recommend.

What we need is action.

Since the end of World War II, we've had a constant parade of aviation commissions, study groups, task forces and sundry melanges of experts who have met, studied, argued, recommended, only to leave Washington and forget the whole matter. Some were billed as saviors who would solve all the problems. The last major efforts were by the Harding and Curtis Commissions, and the Airways Modernization Board. They initiated the work that gave us the Federal Aviation Act of 1958 together with an independent Federal Aviation Agency. Out of these studies alone, which were inspired and organized as a result of spectacular airline catastrophies, there came literally scores of volumes on every subject imaginable. Many of them, as well as those of predecessor commissions, are gathering dust all over Washington, reports and studies that cost time, money and energy in considerable degree.

Except for the new Act and a reinstatement of autonomy, very little has emerged from the standpoint of practical action or any rapid improvement in methods or long-range policy. Too often the mountain has gone into labor and given birth to a mouse.

The major fault we find with the old time-honored habit of forming commissions and task forces to study and recommend policy is that few of them ever have any power other than to recommend. Doesn't it stand to reason that what aviation needs today is more action by those with the power, more efficiency and less bureaucracy, more national understanding, especially in the Congress, of the tremendous importance of rapid aviation development to the nation's welfare, its economy and defense?

Fortunately, in one respect, we might see this happen. There have been very few times in the history of U. S. aviation when we've been blessed with capable, experienced and dedicated men at the head of the FAA and the CAB, simultaneously. We have in Najeeb Halaby of the FAA and Alan Boyd, Chairman of the Civil Aeronautics Board, some stellar attributes not generally characteristic of appointees to these top-ranking aviation positions. Both men are trained and educated lawyers and both are airmen, having had seasoning in many cockpits as real, honest-to-goodness pilots. They impress us as clean-cut gentlemen who seem to be completely dedicated to aviation progress and adequately recognize the hazards of political office, with the necessary backbone to stand up and speak out for their convictions. They both appear to be completely non-sectarian, outside the pull of vested interests, with a healthy total view of aviation and no particular principal interest in any one phase.

Boyd and Halaby seem to have the necessary earmarks for the kind of action we're talking about and capable of leading U. S. aviation out of the desuetude which derived from vacillation, compromise and fundamental bureaucratic weaknesses inherent in both agencies. In some respects our domestic aviation situation is comparable to our falling behind in the space race. We're still fooling around, arguing all over the place in a bureaucratic jungle, while the Russians put the first man into orbit — or at least they say they did.

Everyone is in complete agreement that we need to outline our goals and establish dynamic national aviation policies. What we don't need is more Wall Streeters, do-gooders and other miscellaneous experts to sit around Washington making more studies and recommendations, only to be replaced next year by others, no more or no less qualified to make more reports and like the students in the old college song, pass and be forgotten with the rest.

Let's petition the FAA Administrator and the Civil Aeronautics Board Chairman to take the bull by the horns, streamline their agencies and establish their own compass courses from their own knowledge, training and experience, together with the tons of advice now gathering dust in the archives. Let our aviation leadership in Congress join hands with them to get U. S. aviation rolling again, without benefit of short-term experts.

Capable aviation agency leadership, backed up by a wise and informed Congress and a forceful President, will do the job. If we settle for less, our air transport system will continue in a dangerously unsettled condition, airport development will lag and general aviation will level off on its present plateau after a healthy decade of growth and expansion. Already our traditional leadership in World aviation is beginning to falter in nearly every department. We're vulnerable as a nation. The aviation economy is vulnerable. It's time to quit talking, researching and studying. It's time to throw away the crutches and act!

(Continued on page 16)

Step up to the finest . . .

Place your luggage in the large, knee-high baggage compartment, take one easy step into the luxurious cabin upholstered in rich fabric and genuine leather. For greater comfort, speed, payload and range, step up to the finest.

Write today for your copy of an illustrated brochure that fully describes the new Aero Commanders 500A, 500B, 560F and 680F.

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for positive identification
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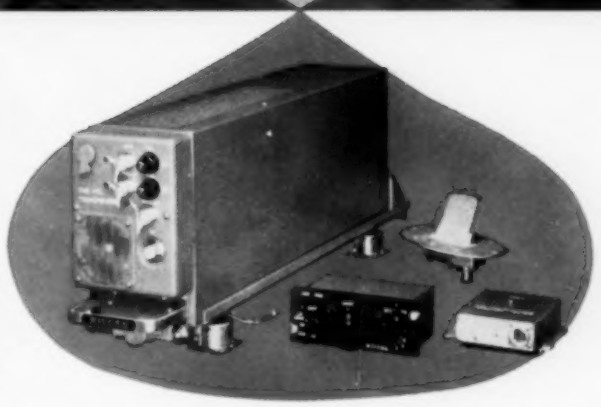

It is a highly reliable Interrogator-Transponder System that provides: positive identification of aircraft under all conditions of weather or traffic . . . facilities for air-to-ground transmission of coded traffic control information. Its compactness and low power requirements make it ideal for use aboard business or commercial aircraft, including the smaller business twins.

Check These Features You Can Count on in the wilcox Model 714 ATC Transponder

- Contains Sidelobe Suppression System which eliminates undesirable replies to sidelobe emissions from the antenna of the ground control interrogator. The dual version of the Model 714 ATC Transponder operates on the 3 and 2 pulse systems, enabling you to use it world-wide. It is also available for domestic use in a 3 pulse only version at considerably less cost.
- Cavity tuned transmitter increases frequency accuracy . . . provides maximum stability.
- Provides positive identification and positive information.
- Contains provisions for automatic altitude reporting.

The wilcox Model 758 Transponder Function Tester

- provides positive indication of a reply to ground interrogation when the panel-mounted indicator light glows.
- provides instantaneous functional checking of operating condition either in flight or on the ground. Pilot simply activates a panel-mounted selector switch . . . when indicator light glows, he knows transponder is functioning.
- weighs less than 1 pound complete!

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Pilot Pointers

By FRED K. DICK

DEAR JEEB AND LONELY READERS: "Everybody talks about the weather but nobody does anything about it," as the saying goes. Airport weather stations are not technically a part of FAA but their reports are such an integral part of the air traffic control picture that some means of better coordination is needed.

3D HOURLY WEATHER REPORTS NEEDED: Now that the high-speed printers are in operation (in spite of what that vindictive out-going republican did to the hourly weather sequences), more scheduling time should be available to add 3D remarks to the end of each station report. We mean such as top, stratus or cumulus, between layers, visibility, base of upper layer, top, clear above, wind aloft remarks and temperature info — especially during the winter months, we need exact information on freezing level, inversion level temperature and thickness to the upper freezing level, and tops. These abbreviated remarks should be part of the hourly sequence reports.

Radats, which give freezing level info on hourly sequence reports at 1 Greenwich and 13 Greenwich, should include thickness of inversion information, if any. (Dear Lonely Reader, all this inversion and radat jazz is important because, if it is freezing on the ground but above freezing at 2,000 ft., for example, and is still above freezing to 8,000 ft., then there's no ice, no sweat — especially if you have on-top reports that fit your aircraft and your capabilities, no fronts and destination airport is above freezing.)

COORDINATION? It should be the direct responsibility of each tower controller, flight service operator and center peripheral communications controller to request and seek out on-top and temperature information, at least at 3-hour intervals, and hourly if possible, and then to relay and EXCHANGE this info with the proper weather station, the flight service station, the tower and the exact center position, so that this information will be available to the pilot and the controller, regardless whether the pilot is climbing the stairs to the Weather Bureau or making like an eagle. Also, center peripheral controllers should have readily available FRESH surface weather and top information for the pilot en route — at least covering the controller's sector and with some reasonable overlap in the next sector or destination airport, even though the destination is in the adjacent center.

THUNDERSTORM RADAR INFO put out by individual Weather Bureau stations on an hourly basis is easy to read, more detailed and faster than the summary put out by the KC Region, for example. These individual radar reports should be put on the teletype circuit so that any flight service stations and Weather Bureaus within a 200-mile radius have this info, regardless of regional lines and location and summary delays.

12-HOUR TERMINAL FORECASTS should be extended to 18-hour forecasts and 24-hour terminal forecasts should cover 36 hours. As it is now, a so-called 24-hr. terminal forecast is, for all practical purposes, only an 18-20-hr. forecast.

6-HOUR ACTUAL WIND ALOFT REPORTS could be available at least 1 hour earlier if the lower 12,000 ft. was worked up and put on the circuit first; the upper levels could be worked up and put on the circuit later.

SCHEDULED WEATHER BROADCASTS at 15 and 45 after the hour on omni frequencies should have EQUAL priority with flight plans and control instructions, so that the cooperative pilot, or "the pilot with his transmitter out," who does not clutter up voice channels with requests for weather info, could have an EVEN chance of receiving weather info at exactly the scheduled time and before he is out of receiving range.

WE NEED IN-FLIGHT ABBREVIATED-FORM IFR FLIGHT PLANS. Such details as aircraft color combinations, home addresses, etc., etc., etc., really jam up the communications frequencies and affect the safety of traffic control.

Such are the ideas which came to me while hurrying up and waiting around various airways and airports this month. Before I forget it, here's another matter — Weather Bureau phone numbers (unlisted numbers for pilots) have been changed at many cities. I wonder why, and how can a fella get a revised list without joining the AOPA?—FRED K. DICK

Tribute To An Airport Man

AN aviation reunion not soon to be forgotten was the April 15th banquet held in honor of Fort Worth's "grandpappy" of aviation, William G. Fuller, who retired last month after a half-century of dedicated service to his community and to his primary profession of airport management.

The guests came from near and far — retired admirals, generals, airline executives, former employees, airport operators, civic leaders, pilots of every type and description — to pay homage to the man who took his first airplane ride in 1911 and retired as Fort Worth's aviation director March 10.

Perhaps no one man in America has been identified as long with one city's aviation history as has Bill Fuller with Fort Worth's. Bill arrived in 1925 by the U. S. Army Air Service with a detachment on what is now Meacham Field. When he left the Air Service in 1927, he didn't move an inch — he simply cast off his khakis and donned the mufti as Fort Worth's airport manager. With the single exception of defense and government assignments during World War II, Bill's service to his community has been uninterrupted.

We remember Bill as far back as the early 1930's when Texas Air Transport and Bowen Airlines were Fort Worth's major airline operations. You'd go into Bill's one-man office adjacent to a passenger waiting room consisting of two benches alongside the wall and generally find some celebrity like Will Rogers waiting for Amon Carter, Sr., to pick him up. In those days, adventuresome oilmen and celebrities comprised the bulk of airline trade. Fuller did everything around the airport from collecting rents to loading the mail and often helped with the fueling. There was no traffic control, no weather bureau, no eating facilities. We once saw Will Rogers help him open the hangar doors.

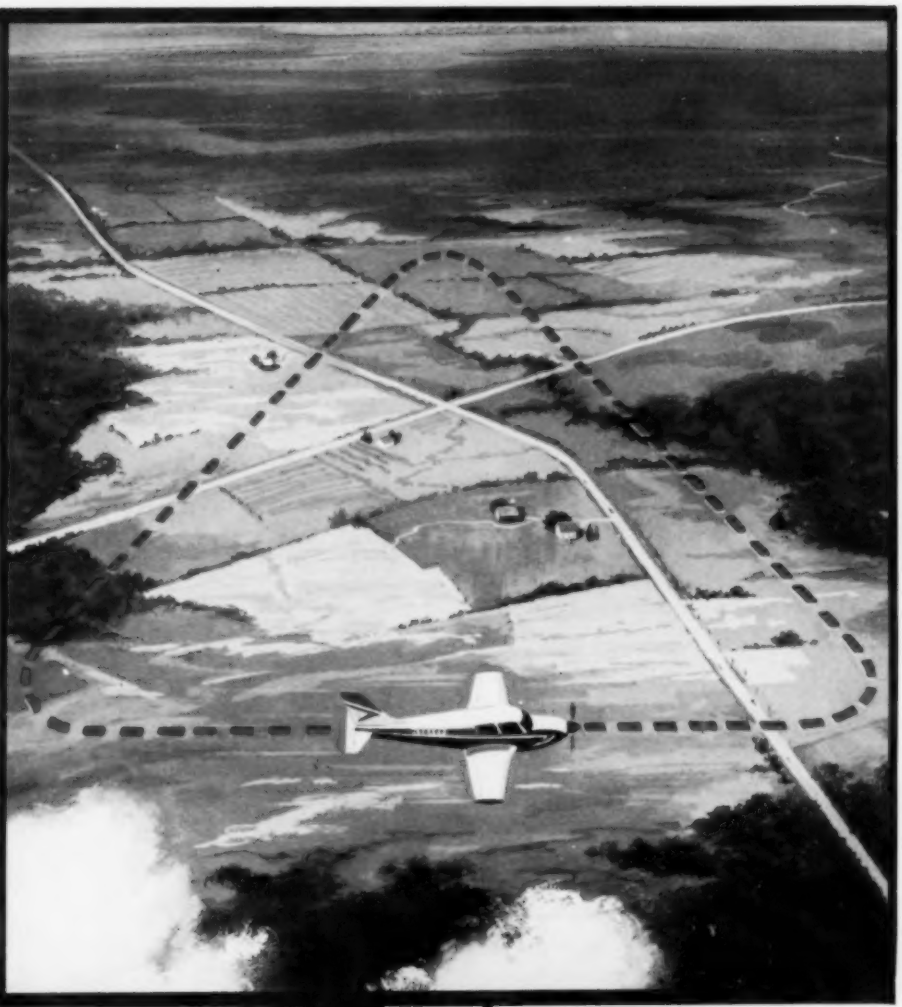
Airport management has never been a bed-of-roses occupation. You have to be a combination of politician, statesman, public relations expert in addition to knowing everything, technical and otherwise, about airplanes, construction, airlines, plumbing and laws pertaining to the air. Bill Fuller had his share of troubles. City administrations change and many times Bill was caught in the middle of local political battles. One time a clique almost got his job. Amon Carter, Sr., one of Bill's most faithful friends and

(Continued on page 65)

WING TIPS

WHEN LOST IN FLIGHT —EMERGENCY PROCEDURE

If you're ever lost, here's what to do: WITH RADIO CONTACT: Tune to emergency frequency 121.5 mc. Fly a triangular pattern to the right in 2 minute legs with 1½° per second turns of 120°. Complete a minimum of two patterns before resuming course. If radar contact is established, instructions will be given on 121.5 mc. NO RADIO CONTACT: Fly a triangular pattern to the left in the manner described above. If radar contact is established, a Search & Rescue plane will be dispatched for interception. Resumption of course will not compromise this system as your plane will continue to be tracked as "distressed" from the point of initial radar contact. If possible, repeat the procedure each 20 minutes until instructions are received or interception by Air Rescue Service is accomplished.



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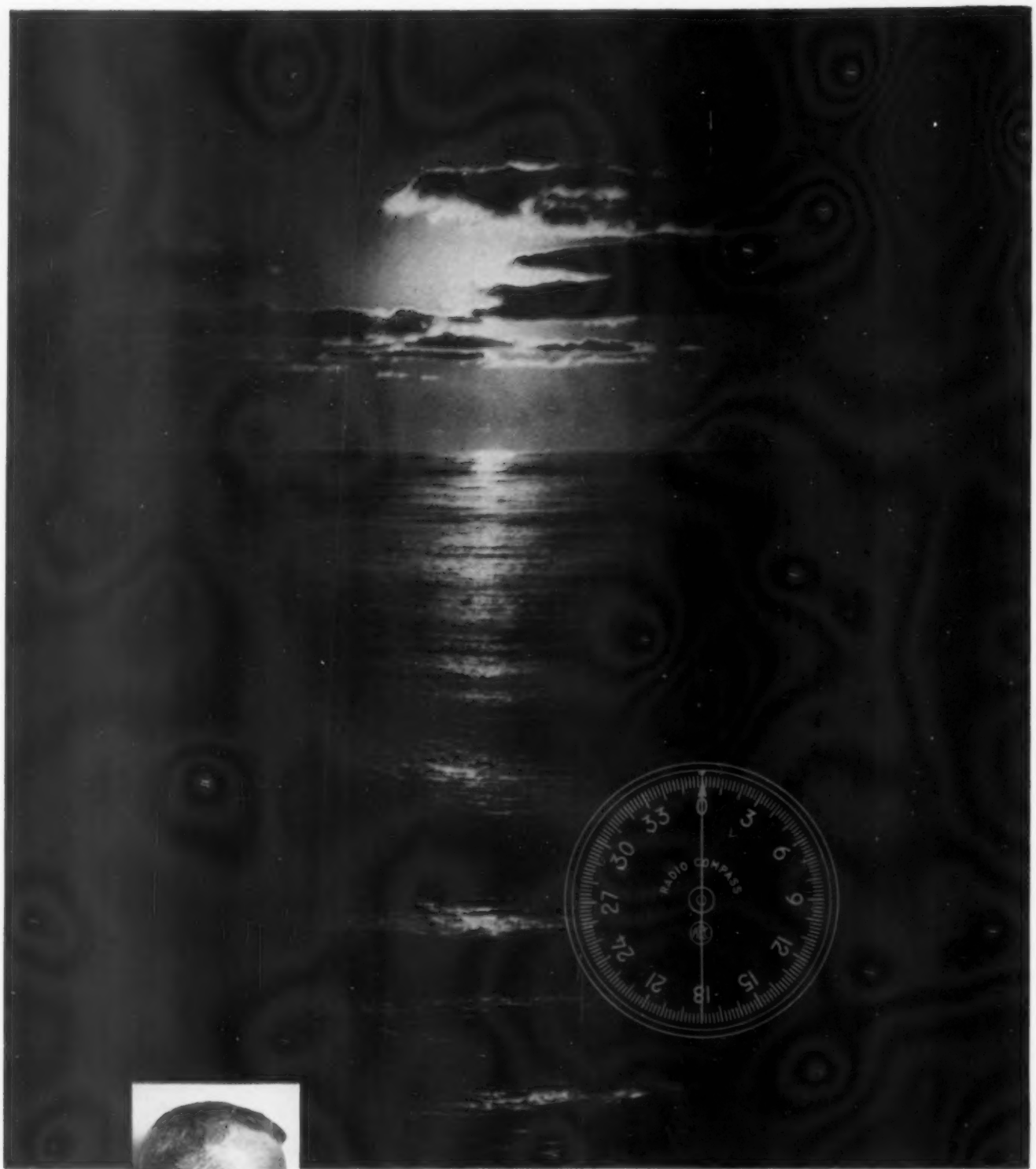

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Full-size mock-up of twin-turbine Jet Commander was unveiled to Aero Commander distributors on May 4. The 500-mph., $475,000, 6-place Jet Commander will gross 14,000 lbs., carry 950 gals. of fuel for 2,000-mile range. Engines are General Electric CJ-610-1 jets, each rated at 2,850 lbs. of thrust. —(Aero Commander Photo.)

500-Mph. Jet Commander For Business Flying

FIRST lightplane manufacturer to announce a 500-mph., 6-place twin-jet business aircraft is Aero Commander, Inc., which began accepting orders on May 4 after exhibiting a mock-up of its powerful Jet Commander Model 1121. The Jet Commander is priced at $475,000 without electronics and $555,000 fully equipped, including dual electronics.

Construction is under way on the prototype, which will make its first flight in 1962 — perhaps as early as 12 months from now — with first deliveries following a year later in 1963.

Tom Harris, Aero Commander vice president and general manager, said the Jet Commander was designed "well within the state of the art from the technical standpoint" and "reflects executive aircraft requirements with which our company has become intimately familiar as the only manufacturer specializing in building and marketing multi-engine business aircraft alone and exclusively." He stressed the point that the Jet Commander has been launched commercially, without any dependence on possible military orders or justification.

"We convinced ourselves that the executive market alone is sufficient before we launched the Jet Commander's development, and we are already well along in the project, completely on a commercial basis," Harris said. "Because we have always specialized in business aircraft, with no dependence whatever on any military or other products, we have always concentrated our engineering and development resources and our marketing research on business aircraft requirements and this specialization has now produced the design for a completely new Jet Commander which incorporates the requirements our commercial customers want for their purposes as distinguished from military adaptation."

Harris said direct factory marketing of the Jet Commander will include arrangements to be established with Aero Commander's worldwide distributors for their assistance with sales.

General Electric is expected to be among the first corporations to order the Jet Commander.

The Jet Commander is powered by two General Electric CJ610-1 jet engines, each rated at 2,850 lbs. of thrust for take-off and 2,700 lbs. of thrust for normal operation. Grossing 14,000 lbs., the Jet Commander thus has an abundance of power — about 2.45 lbs. per pound of thrust — for very high performance

Design speeds for the Mach 0.8 Jet Commander include 503-mph. maximum true airspeed cruise at 35,000 ft. Maximum cruise at altitudes below 20,000 ft. is 415 mph. indicated airspeed.

To go with these high speeds, its stall speed is 95 mph. with flaps and gear extended and 111 mph. with flaps and gear retracted. Gear extension speed is 287 mph. IAS and flap exten-

Jet Commander Flight Plan, Los Angeles to Oke City

TO illustrate the Jet Commander's high-speed trip performance, Ted Smith of Aero Commander gave us a simulated Los Angeles-Oklahoma City flight plan, at 14,000-lb. gross with 6,100-lb. fuel load, as follows:

0:00 — Off at Los Angeles.

0:14 — Reach 35,000 ft. 80 mi. from take-off, using 748 lbs. fuel for start-up, taxi, take-off and climb. Fuel remaining, 5,352 lbs.

1:59 — Start descent over Amarillo after cruising 870 miles at 35,000 ft., using 2,690 lbs. of fuel in 1 hr. 45 mins. of cruising. Fuel remaining, 2,662 lbs.

2:33-38 — Holding at 5,000 ft. over Oklahoma City Omni after covering 217 miles in 34-min. descent and using 813 lbs. of fuel in descent and 140 lbs. in 5 mins. of holding. Fuel remaining, 1,709 lbs.

2:48 — Land at Oklahoma City, using 157 lbs. of fuel from Omni. Fuel remaining, 1,652 lbs.

TRIP LOG: 1,180 miles in 2 hrs. 48 mins., averaging 430-mph. block speed and using 685 gals. of fuel with 265 gals. of fuel remaining.

Mock-up of Jet Commander shows simplicity of instrument panel, with dual flight groups on each side, engine group at center and nav-com controls on throttle console, which also has autopilot controls and electric trim tab switches. Cabin pressure controller is at left bottom of panel. Radar indicator is to left of engine dials, radar controller at right. Engine dials from top down are for pressure ratio, rpm., temperature, fuel flow, oil pressure and oil temperature. Square panel to right contains warning lights for fuel, oil pressure, fuel pressure, duct ice, cabin door, cabin pressure and gyros. Switches and circuit breakers are in arm-rest panels on both sides of cockpit.
—(Aero Commander Photo.)

sion speed is 172 mph. IAS, both for any altitude.

As fast as the Jet Commander's design speeds are, it will operate from 3,000 ft. of runway at elevations up to 5,000 ft. with a temperature accountability of 85 degrees — the speedy jet will thus offer short-field versatility similar to that of the new high-performance 680F Aero Commander, which is currently the fastest piston-powered light twin on the market.

Twice as fast as the 680F, the Jet Commander will climb at better than 7,000 ft. per min. from take-off — it will reach 35,000 ft. from sea level in 12-14 mins. At 35,000 ft., it will offer a design cruise performance of 435 knots (500 mph.) true airspeed for an IFR range of 1,500 nautical miles (1,720 statute miles) or an all-out VFR range of 2,000 miles.

Fuel capacity will be about 950 gals. of kerosene, including 725 gals. inside the wing and 225 gals. over the wing center section inside the fuselage.

The powerful Jet Commander will accelerate from a standing start at sea level and gross weight to 95 knots (rotation speed, at which the nose wheel is lifted) in only 15 seconds. At 5,000 ft. above sea level, this acceleration is 18 secs. For a 100-degree day at sea level, the acceleration to rotation speed is 18 secs. and for an 82-degree day at 5,000 ft. above sea level, it is 20 secs. These are all design performance figures. Others include the following:

At sea level and gross weight, the Jet Commander will take off in 1,932 ft. and clear a 50-ft. obstacle in 2,129 ft. These distances are 2,702 ft. for take-off and 2,954 ft. over a 50-ft. obstacle for take-off from a field 5,000 ft. above sea level. For a 100-deg. day at sea level, take-off distance over a 50-ft. obstacle is 2,793 ft. and for an 82-degree day at 5,000 ft., it is 3,703 ft.

Twin-engine rate of climb from sea level at gross weight is 7,000 ft. per min. at 300 knots true airspeed. At 30,000 ft., it will still be climbing 1,800 fpm. at 340 knots TAS. Service ceiling is 44,000 ft. With one engine out, sea level climb at gross weight is 2,200 fpm. at 210 knots TAS. Single-engine service ceiling is 28,000 ft.

Ted Smith, Aero Commander vice president-engineering research and development, emphasizes that the Jet Commander was designed for businessman flying and handling, featuring simple operating features and handling characteristics similar to those of piston-powered Aero Commanders.

"The Jet Commander design avoids military features such as wing sweep, tip tanks and power-boost controls," Smith said. "Such military features not only complicate the business airplane but detract from its handling characteristics. We believe turbine airplanes can be simple and we have made the Jet Commander simple — it is not a radical design. In addition to its high speed, it also features short-field performance. It will actually go anywhere a 680F Aero Commander will operate. This means it is not restricted to big airports, such as Los Angeles International Airport, for example — it can take the business pilot exactly where he wants to go, be it Santa Monica, Van Nuys, Palm Springs, or anywhere else an Aero Commander will go. This go-anywhere capability will prove the Jet Commander's usefulness to be far greater than that offered by any 500-mph. airplane on the market."

Normal operating cabin pressurization will be 7.5 lbs. per sq. in., which

Passenger compartment extends 101.75 inches aft of lavatory, which is behind cockpit at cabin door. This view looks rearward. Interior is 6.5 ins. higher and 4.5 ins. wider than in current Aero Commanders, Jet Commander headroom being 59.5 ins. and width 56.5 ins. Reclining seats have folding arm rests.
—(Aero Commander Photo.)

will provide a sea level cabin up to 18,000 ft. and an 8,000-ft. cabin at 35,250 ft. An automatic cabin controller will be provided. Its cabin pressurization system includes dual air-driven compressors, either of which will be sufficient to maintain its 7.5-psi. normal operating cabin pressure. The air conditioning and heating system will provide for ground, as well as flight operation, with capability of maintaining selected cabin temperature within 3 degrees.

Although the mock-up of the Jet Commander bears a close resemblance to the familiar Aero Commander fuselage design, it is completely new. Unlike other 500-mph. airplanes, this one does not have a circular cabin — its oval shape is called a "conic development" or a "parabola." This provides for more efficient cabin interior design, with less frontal area than a circular fuselage. Interior height is 59.5 ins., which is 6.5 ins. higher than the current Commander's and interior width is 56.5 ins., which is 4.5 ins. wider than the current Commander's.

Over-all length is 48 ft., which is about 13 ft. longer than the 680F's length. The cabin floor is about as close to the ground as that in the current Commander, eliminating the need for steps in the cabin door, which is located up front, just behind the cockpit. Separating the cockpit from the passenger compartment is a lavatory compartment 27 inches long. The passenger cabin extends 101.75 ins. aft of the lavatory to the rear pressure bulkhead. The wing center section is behind this pressure bulkhead and the fuselage-mounted rear engines are aft of the wing trailing edge, thus locating the engine air intakes far behind the passenger compartment. This minimizes engine noise and should make the Jet Commander the quietest executive airplane flying.

A mid-wing design was chosen for the Jet Commander because it is said to be more efficient than either a high or a low wing. The short-strut main landing gear retracts outward into the wing.

Use of aft-fuselage-mounted engines follows latest air transport design practices for advantages, including use of the wing to protect engine air intakes from foreign object ingestion on the runway and in taxiing. On the Jet Commander, however, no fuel lines extend forward of the passenger compartment pressure bulkhead. Because of the aft-mounted engines, the tail's horizontal stabilizer is located on the vertical fin, but less than half way up.

The high-speed wing has a span of 43.31 ft., which is about 6.2 ft. less than that of the 680F span. Height of the vertical fin, however, is only about 3 inches greater than that of the 680F, being 14 ft. 9 ins.

The Jet Commander has been designed for flexibility in fuel and payload combinations. At 14,000-lb. gross weight, for both take-off and landing, it has a payload capability of about 7,200 lbs. based on an equipped empty weight of 6,800 lbs., the latter including about 500 lbs. of equipment (non-equipped empty weight is about 6,300 lbs.). Large fuel capacity is provided so that most of its payload capability can be used for fuel, if desired, full tanks holding about 950 gals. of kerosene weighing some 6,100 lbs. This would leave a payload allowable for people of 700 lbs. — but this is for an IFR range of 1,500 nautical miles, which is far greater than that offered by any high-performance piston-powered light twin. But the jet has a considerably greater fuel burn-off rate, offering wider payload-range flexibility than the piston twin. While the fast piston twin's fuel burn-off equals only about 200 lbs. or 1 passenger in 1 hour, the Jet Commander's fuel burn-off will equal more than 7 passengers in 1 hour. This enables it to duplicate or better the fast twin's IFR range in miles with full seats or 6 people and baggage. Because of this versatility, the Jet Commander will duplicate the 680F Commander's outstanding payload-range capabilities at twice the speed. In doing so, however, it will provide greater passenger comfort in such items as cabin space, air-conditioned pressurization, cabin quiet and freedom from vibration and weather discomforts.

The Jet Commander's GE jets are expected to be authorized 600 hrs. or more of operation between overhauls. This is the equivalent of from 240,000 to 300,000 miles, which would require 1,200 to 1,500 hrs. to match in a 200-mph. piston twin.

Engine-inlet and fuel-screen anti-icing provisions will be standard. Electrical anti-icing equipment is

(Continued on page 50)

Here's General Electric CJ-610-1 engine on a stand alongside the Jet Commander mock-up, showing engine nacelle behind it. The $45,000 CJ-610-1 is rated at 2,850 lbs. of thrust for take-off, is 39.7 ins. long, 17.7 ins. in diameter, weighs 355 lbs. for an 8-to-1 power-to-weight ratio, and has 8 compressor stages and 2 turbine stages. It was developed specially for business aircraft, is based on the military J85 jet in the USAF T-38 supersonic trainer, will be FAA-certificated this year and is expected to be authorized 600 hrs. between overhauls as a start.

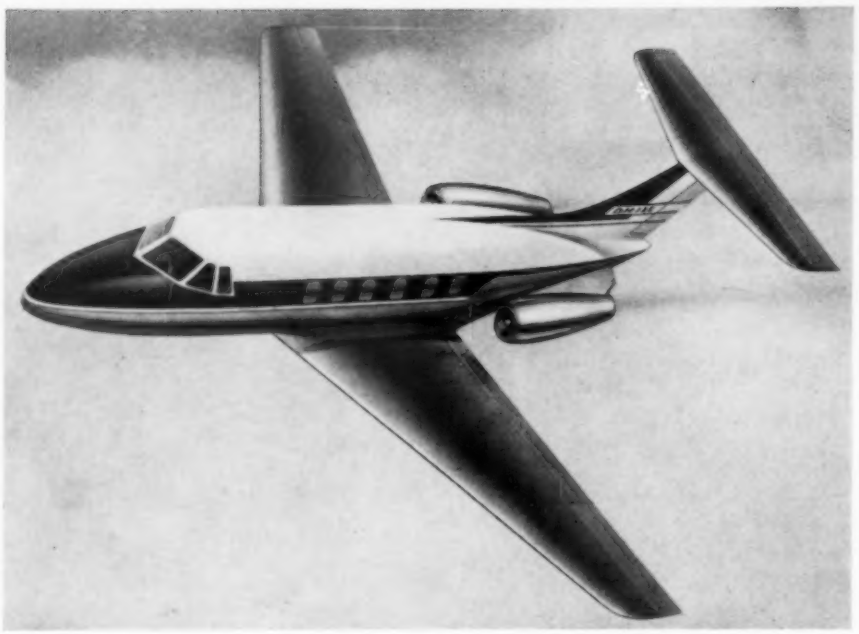
Jet Commander

Design Data

Powered by two GE CJ610-1 jets, 2,850 lbs. of thrust each. Cabin pressure of 7.5 psi. provides sea level cabin up to 18,000 ft.; 8,000-ft. cabin at 35,000 ft.

Price	**$475,000**
No. Seats	**6**
Gross Wt., lbs.	**14,000**
Empty Weight, lbs.	**6,300**
Useful Load, lbs.	**7,700**
Useful Pct. of Gr. Wt., %	**55**
Fuel Cap., gals.	**950**
Stall Spd., landing, mph.	**95**
Stall Spd., clean, mph.	**111**
Design Cruise Speeds—	
Indicated Airspeed below 20,000 ft., mph.	**415**
Indicated Airspeed at 20,000 ft. and above, Mach	**0.80**
True Airspeed at 35,000 ft., mph.	**503**
Cruising range, miles	**1,930**
Gear Extension Spd., mph.	**287**
Flap Extension Spd., mph.	**172**
Rate of Climb, fpm.	**7,000**
SE Rate of Climb, fpm.	**2,200**
Service Ceiling, ft.	**44,000**
SE Svc. Ceiling, ft.	**28,000**
Take-off Dist. Over 50-ft. Obst., ft.	**2,129**
Span, ft.	**43.31**
Length, ft.	**48.00**
Height, ft.	**14.75**

This is the twin-jet, 500-mph. de Havilland DH-125, which will carry 8 persons 500 mph. Thirty of the $500,000 jets will be produced for delivery beginning in 1963. The DH-125 is powered by two Bristol-Siddeley Viper jets of 3,000 lbs. of thrust each.



DeHavilland's Executive Jet

A NEW 500-mph., 8-place twin-jet business aircraft has been designed by de Havilland Aircraft Company as part of an intensive program of the Hawker Siddeley Aviation companies in England to compete in the worldwide civil aircraft markets during the coming years. Ian Fossett, de Havilland representative in the United States, said the twin-jet is the DH-125 and it will have a cabin slightly longer than that of the widely-popular de Havilland Dove, about 16 inches wider and with 7 inches more headroom than the Dove.

Although not priced as yet, the DH-125 will probably be offered at about $500,000 without electronics and with rear-mounted Bristol-Siddeley Viper 20 jet engines of about 3,000 lbs. thrust each. Viper jets have had extensive operating experience in the RAF Jet Provost trainer. The DH-125 will gross 18,000 lbs. with an equipped empty weight of about 8,000 lbs., offering about 10,000 lbs. for useful load. Of this, fuel capacity will be 995 Imperial gallons (about 1,200 U. S. gals.). Fossett said the DH-125 was designed so that it can carry crew of two and their baggage (400 lbs.) plus 6 passengers and their baggage (1,260 lbs.) plus full fuel tanks (about 7,900 lbs. of fuel). Maximum range will be about 1,800 miles, with an IFR range of about 1,300 miles based on airline IFR reserves (45-min. stand-off with descent to sea level, missed approach, climb to 20,000 ft. and diversion of 200 nautical miles to alternate airport).

"Over and above all of this performance, however, will be design emphasis making the DH-125 capable

(Continued on page 50)

DOUGLAS-PIAGGIO UTILITY JET DESIGN

JOINT development of a 6-place, 500-mph. twin-jet utility transport for both commercial and military sales has been announced in an international agreement between Douglas Aircraft Company of Santa Monica and an Italian aircraft manufacturer, Piaggio of Genoa.

Douglas Aircraft has designed and Piaggio of Italy will produce this 6-place, 500-mph. twin-jet utility transport for military and commercial marketing.

Piaggio will produce two prototypes, the first to be ready for flight in 1962, and the design will be provided by Douglas. Releasing the accompanying sketch, Douglas said it will be powered by twin jet engines with thrust up to 3,000 lbs., and will cruise at 500 mph. at 40,000 ft., with cabin altitude pressure equivalent to that of 7,500 ft. Other details were not disclosed.

For commercial use, the PD-808 "fulfills all of the requirements of business and executive aircraft," Douglas said. Military versions would be for training and transport as well as active combat support during limited war. "Market surveys confirm an increasing demand by both government and private business for light, utility jet aircraft of this type," Douglas said.

Douglas has an option for exclusive sale and servicing of the twin-jet throughout most of the world, excluding Italy and other European areas. Douglas also has the right to manufacture the plane, if ordered, for U. S. government agencies.

Symbol of business aviation growth in the Northwest is this new $500,000 aircraft sales and service center opened last month at Portland by Flightcraft, Inc., Beech distributor. —(Flightcraft Photo by Phil Carrell.)

Portland's New Beechcraft Facility

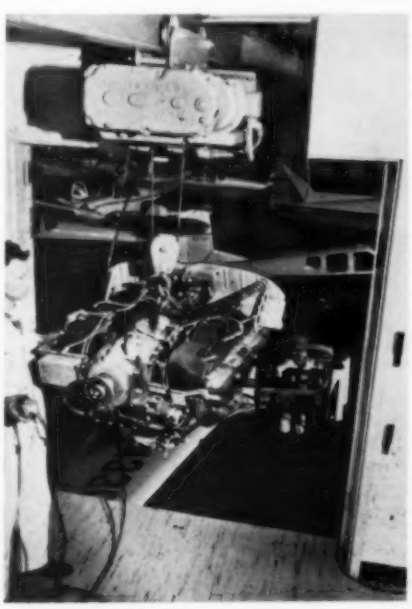
A NEW $500,000 business and pleasure flying sales and service terminal was opened at Portland International Airport last month by Flightcraft, Inc., Beechcraft distributor in Oregon, Washington, Northern Idaho and Alaska. A highlight of the opening was showing of the complete 1961 line of Beechcrafts including the first public showing of the new B95A Travel Air Twin. Beech factory officials led by Leddy Greever, vice president-commercial sales, participated in open-house festivities.

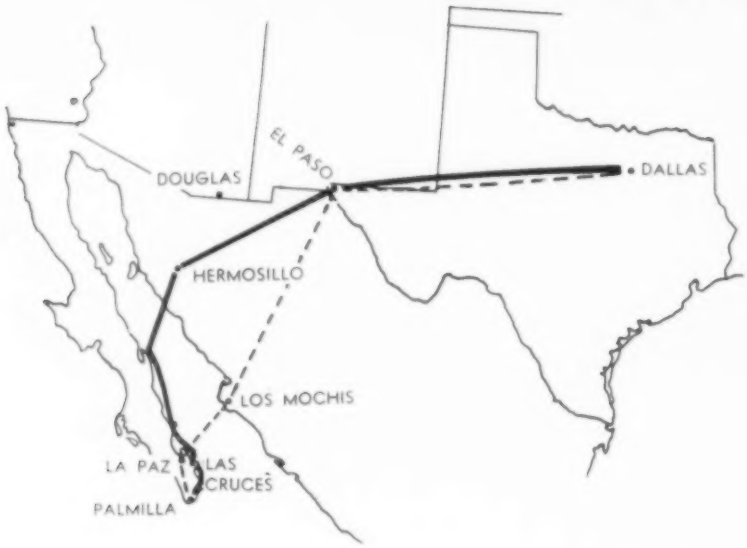
Flightcraft's model new facility is located near the airline terminal, facing the airport's new parallel instrument runway and adjacent to a 4-lane highway to town. The big Flightcraft installation includes a 30,000-sq. ft. main hangar which also houses general offices and sales and service departments, an aircraft display area, conference rooms for flying businessmen, and passenger and pilot lounges. A separate hangar is devoted to servicing and the facility has three T-hangar units, two of 10-plane capacity each and a third for six twin-engine aircraft. Silas King, president, said additional T-hangar space and more aircraft tie-down area is already planned to meet growth requirements. The aircraft ramp already measures 475 by 600 ft. but must be expanded.

Flightcraft was established in 1948 after consolidation of the Harry K. Coffey interests, Beech distributor in

(Continued on page 62)

Night scene on the busy Flightcraft ramp in Portland is pictured below. Engine on electric hoist was lifted from Bonanza in background, with engine shop on second floor. —(Flightcraft Photos by Phil Carrell.)





Map shows Aztec round trip of 2,637 miles flown in 15 hrs. Longest hop was 605 miles from La Paz to El Paso. At Las Cruces, we visited three crosses at spot where originals were erected by Cortez during the conquest of Mexico.

Aztec to Mexico

By GEORGE E. HADDAWAY

The rock-bound coast of Lower California in Mexico serves up some of the most beautiful vistas in North America, as pictured here from the Aztec.

THE fish are biting, the sun is shining in the Sea of Cortez, and the accommodations are first class down Mexico way. We can attest to this after a flight last month to Baja California in a spanking new 1961 Piper Aztec.

We made a foursome for the voyage, so with lots of baggage and flying with full tanks, the only way to go in Mexico, it was an ideal setup for putting the Aztec through its paces in all kinds of temperatures, altitudes, winds and landing fields, which ran from the big terminals to the gravel strips adjacent to the resorts at our destination.

Flying the Aztec comes mighty easy for the Apache pilot. The extra 180 horsepower actually makes it more pleasurable to fly. Every control, every switch and button and all cockpit procedures are identical with those of the Apache. Very little time is consumed in check-out because the extra power takes care of the higher gross. About the only thing we could discern in piloting was the more pronounced effect of flaps on final approach.

It's a 200-mph. airplane but we preferred economy cruise, what with very limited Mexico weather information and no omni navigation facilities at all south of the border. For nearly all of our flight we had adverse winds but the Aztec was impressive with its performance, an amazing airplane currently making sales history. It's a delight to fly, a rugged, stable airplane and you never quite forget its remarkable ability to carry a whole ton of payload at 4,800 lbs. gross weight.

Our trip was the result of a conversation with that man-about-Piper,

Bill Strohmeier, during Mr. Piper's 80th birthday party at Vero Beach in January. When I expounded on the beauties of Rancho Las Cruces and Palmilla on the tip of the Lower California peninsula as *the place* to go for a story and photos of the '61 Aztec, I could see the glint in Strohmeier's eyes. And, having had an Apache for a year, he could see my mouth drooling over the prospects of an Aztec voyage, no matter where. When the trip materialized last month, he brought along two husky teenage boys, his own and a neighbor's, who had never been west of the Mississippi. This, of course, gave added zest to our trip, for what's more fun than showing the West, particularly Mexico, to young-uns who've never been there?

We needed the ton of payload afforded by the Aztec, what with the boys carrying skin diving guns and equipment, Mae Wests, cameras, oxygen, survival gear, a miscellany of food and goodness knows what else as baggage. With full tanks of 144 gallons of gas and a decision to get efficiency for length of legs, and with unknown winds and weather, that grand old feeling of security stays with you in the Aztec. At 65 per cent power, we burned about 24 gallons an hour. Our longest leg, 605 miles direct from La Paz, Mexico, to El Paso, was three hours, 25 minutes, against the wind. We had 60 gallons left on board for nearly three more hours at "holding" power. That's a nice reserve that can't be sneezed at — real money in the bank.

As with all modern light twins, true utilization in the 90 to 100 per cent time bracket comes only with adequate navigation and communications equipment flown by an instrument-rated pilot. Our Aztec, N4777P, was the Super Custom model with the "Altimatic" autopilot and glare ban instrument lighting. The radio package consisted of a two and one-half Narco system plus Motorola ADF. We had two VHF Mark V 90-channel transmitters, two VOR/ILS LOC indicators, three 190 VHF receivers, including a Narco Mark VI, a three-light marker beacon and the ADF-T12. Four other optional radio packages are available, using various combinations of Collins, Narco and Sunair with ARC or Motorola ADF. Our Super Custom job with Altimatic carried a retail price tag of $60,055.

While the Altimatic costs $1,995 as against Piper's Auto Control price of only $800, we found its altitude hold worth its weight in gold. You pre-set your course and altitude before take off, then turn it on after you're airborne and trimmed according to load. She heads out on the proper course and when reaching the altitude dialed in on the altitude scale, she levels off and holds heading and altitude better than any human hands could do. Likewise in reducing altitude, you simply dial in the desired level on the horizontal scale and let 'er go. There is a little too much positive pitch when changing altitude settings but we figure this can be adjusted out of the equipment.

Our port of entry in Mexico was Hermosillo, where we are pictured above waiting for the gas truck. At La Paz (below), fuel was pumped by hand through a chamois filter. Because we were uncertain of weather, we preferred full tanks at all stops.

Autopilots with altitude-hold are revolutionizing cross-country flying, a great deal like the boon omni navigation proved to be. These accessories take so much work out of flying, especially when you have to fly into unknown weather, it's as good as a co-pilot, permitting practically full time for communications, navigation and routine cockpit procedures.

The Aztec has dualized all essential systems — generators, vacuum pumps and dual fuel pumps on each engine. Flaps and landing gear are hydraulically operated, supplemented by a hand pump as well as a CO-2 system for emergency extension of the landing gear.

We worked off of some fairly rough landing strips with loose gravel and washboard surfaces. The large steerable nose wheel deserves more than passing praise for rough field usage.

Piper claims that the single-piece stabilator results in 25 per cent less drag and gives better control during the landing flare-out with exceptionally better longitudinal stability in flight. The stabilator is equipped with an anti-servo tab, which really keeps you glued to any flight attitude and decreases the necessity of frequent trim changes due to passengers shifting their weight in flight. The large, swept fin and rudder make for less yaw in single-engine operation. A self-actuating servo aerodynamically boots the rudder when displaced.

Exhaust stacks are of the jet augmentor type which eliminates the need for cowl flaps and improves cooling through suction. Low cost Fram

(Continued on page 48)

New look for B95A Travel Air is furnished by large rear windows. New model has fuel-injected 180-hp. Lycoming engines. Note large flaps, wide span of landing gear.
—(Beech Photos.)

Fuel Injection, Price Cut For New Travel Air

SOME five months after bringing out its other 1961 models, Beech Aircraft Corporation last month introduced its 1961 Model B95A Travel Air, which features (1) fuel injection for its two 180-hp. engines, (2) a $2,000 price reduction and (3) a new 4,200-lb. gross weight with a 1,645-lb. useful load, up 180 lbs. over last year's model.

The new 4-5-place Travel Air's price of $49,500 widens the spread between it and Beechcraft's more powerful $58,250 Baron to $8,750. This probably was the reason for the $2,000 price cut — despite the added costs of going to fuel injection for the 4-cylinder, IO-360-B1A Lycoming engines. These little Lycomings retain the same 180-hp. ratings as last year but the fuel injection eliminates carburetor icing difficulties, provides more precise mixture control and makes for smoother engine operation. The Travel Air was already one of the quietest and smoothest twins on

Length of Travel Air cabin is 8 ft. 6 ins. View above shows two starboard seats fully reclined. Individual seats are track-mounted.

—(Beech Photo.)

the market — fuel injection makes it even more outstanding in this respect.

Travel Air performance includes 200-mph. cruising speed on 75% power and 195-mph. cruising speed on 65% power. With 112-gal. fuel capacity, range with reserve is 1,035 miles using 65% power at 195 mph. and maximum range with 1,170 miles in 7.54 hrs. using 45% power to cruise 150 mph.

Short-field performance includes take-off distance over a 50-ft. obstacle of 1,280 ft. and landing distance of 1,590 ft. over a 50-ft. obstacle, both measurements being at sea level, gross weight and standard air. Rate of climb from sea level is 1,250 fpm. with a service ceiling of 18,100 ft. With one engine feathered, sea level rate of climb is 205 fpm. and single-engine service ceiling is 4,400 ft.

Larger rear windows give added visibility to the cabin, in which a fifth seat is available. The middle windows are no longer openable. Seating is individual, track-mounted and fully-reclining. The Travel Air cabin measures 8 ft. 6 ins. long, 3 ft. 6 ins. wide and 4 ft. 2 ins. high.

New for 1961 are an enlarged nose compartment baggage space, a new cabin accessory shelf and a modern "ram's horn" control wheel. The nose baggage compartment offers 12 cu. ft. of space and 270 lbs. of weight allowance for balancing of baggage loads. This is in addition to the rear baggage area's 33.5-cu. ft. volume and 270-lb. loading.

Standard equipment includes 35,000-BTU heater, full complement of engine and flight instruments, 24-volt electrical system, full-berthing feature on three passenger chairs, improved cabin ventilation system and custom leather-and-fabric upholstering. Optional equipment includes assorted radio combinations, autopilot, propeller anti-icing, wing-tail leading edge de-icing systems and auxiliary fuel tanks, the latter providing 112-gal. capacity (78-gal. capacity is standard).

B95A Travel Air

Factory Data

Powered by 2 Lycoming 4-cyl., fuel-injected, 180-hp. IO-360-B1A engines

Price	**$49,500**
No. Seats	**4-5**
Gross Wt., lbs.	**4,200**
Empty Wt., lbs.	**2,555**
Useful Load, lbs.	**1,645**
Useful Pct. of Gr. Wt., %	**39.16**
Fuel Cap., gals.	**78**
Opt. Fuel Cap., gals.	**112**
Oil Cap., gals.	**4**
Stall Spd., landing, mph.	**70**
Top Speed, mph.	**210**
Cr. Spd., 75% hp., 7,500 ft., mph.	**200**
Cr. Spd., 65% hp., 10,500 ft., mph.	**195**
Cr. Spd., 45% hp., mph.	**150**
Cr. Range, 112 gals., 195 mph., mi.	**1,035**
Cr. Range, 112 gals., 150 mph., mi.	**1,170**
Endurance, hrs.	**7.54**

NOTE: Range includes fuel for warm-up, taxi, take-off, climb, cruise, with 45-min. reserve at maximum-range speed.

Rate of Climb, fpm.	**1,250**
SE Rate of Climb, fpm.	**205**
Service Ceiling, ft.	**18,100**
SE Service Ceiling, ft.	**4,400**
Take-off Dist. Over 50 ft. Obst., ft.	**1,280**
Landing Dist. Over 50 ft. Obst., ft.	**1,590**
Wing Area, sq. ft.	**199.2**
Wing Loading, lbs. sq. ft.	**21.1**
Power Loading, lbs. hp.	**11.7**
Span, ft.-ins.	**37-10**
Length, ft.-ins.	**25-4**
Height, ft.-ins.	**9-6**
Cabin Length, ft.-ins.	**8-6**
Cabin Width, ft.-ins.	**3-6**
Cabin Height, ft.-ins.	**4-2**

NOTE: Performance is for gross weight at sea level unless noted. Landing and take-off distances are for maximum performance.

Cutaway cabin is used by Beech to show spaciousness in Travel Air for five persons. Two middle seats are track-mounted and fifth seat at rear is easily removed. Cabin width is 42 ins. and height is 50 ins. —(Beech Photo.)

X-RAY PROVES NEW CESSNA

HERE'S WHY the big Cessna 172 is the world's best-selling business plane: it gives you speeds up to 139 m.p.h. . . . range up to 790 miles . . . a 15,100-ft. service ceiling . . . a 945-lb. payload —and all these features . . .

1. Navigation lights

2. Big 174 sq. ft. tapered High-Lifting wing for greater lift and stability. Bonus: high wing provides full scenic visibility and comfortable shade for pilot and passengers

3. Nylon contact points between wing and flap

4. 2926 sq. in. Para-Lift flaps—twice normal size—with 4-position manual settings for high-lift, quick take-offs and slow, short-field landings

5. "Eyes-on-the-road" shock-mounted instrument panel

6. Dome and instrument light console (variable intensity)

7. Four ash trays and cigarette lighter

8. Magnetic fuel-level indicators for instant reading

9. Panel space for optional instruments and three radios

10. Recording tachometer

11. Cabin fuel-strainer drain control

12. Engine prime and starter system

13. Large size, spill-proof glove compartment

14. Comfort-contoured control wheel

15. Cabin-controlled elevator trim

16. Speed-stream cowling design

17. "Toe-touch" dual individual brakes for safe, sure stops and pivotal turning

18. Parking brake

19. Two yard-wide doors assure maximum convenience for passenger and cargo loading on both sides.

20. Key-operated door locks

21. Fiberglas insulation and brush-applied sound deadener

22. Nylon tubeless tires

23. Chrome vanadium spring steel "Land-O-Matic" landing gear bags the ground and gives drive-up, drive-down landings

24. Spacious comfort-engineered cabin with plenty of head-shoulder-leg room for 4 big men. Luxuriously designed with beautiful fabrics in your choice of 2 color combinations

25. Arm rests

26. Four map and storage pockets

27. Large 120-pound luggage compartment with convenient key-operated outside door—plus easy inflight access from the cabin.

28. Counter-balanced control surfaces

29. Flight/sweep vertical fin aerodynamically balanced with formed sheet metal dorsal fin

30. Friction-free oilite pulley bearings for longer life and finger-tip control

31. Plastic (Royalite) fin, stabilizer, and wing tips

32. Airplane tie-down rings

33. Assist straps

34. Cabin-operated control locks to prevent wind damage

35. Full size hinged pilot's window

36. 42-gal. fuel capacity—with gravity-flow fuel system

37. Landing light brackets and wiring

38. Audible stall warning indicator

39. 1200 sq. in. full-floating windshield

40. Windshield defroster

41. Two independent magneto-powered ignition systems

42. Flight/sweep prop spinner

43. One-piece forged aluminum alloy propeller

44. Smooth six-cylinder, 145 h.p. Continental engine—holds the world's flight-endurance record: over 64 days.

45. Carburetor air filter

46. 12-volt battery

47. Steerable nose gear (in flight centering)

48. Oversized stainless steel mufflers with heat exchangers

49. "Blend-Temp" heat and ventilation system with 7 adjustable hot and cold inlets including windshield defroster

50. Plush foam-backed carpet

51. Individual fore and aft adjustable front seats—"Polycloud" posture padded and formed on no-sag spring construction

52. Reclining adjustable "Polycloud" posture padded rear seat

53. Seats easily removable for conversion to cargo, ambulance or photo installations

54. Utility shelf

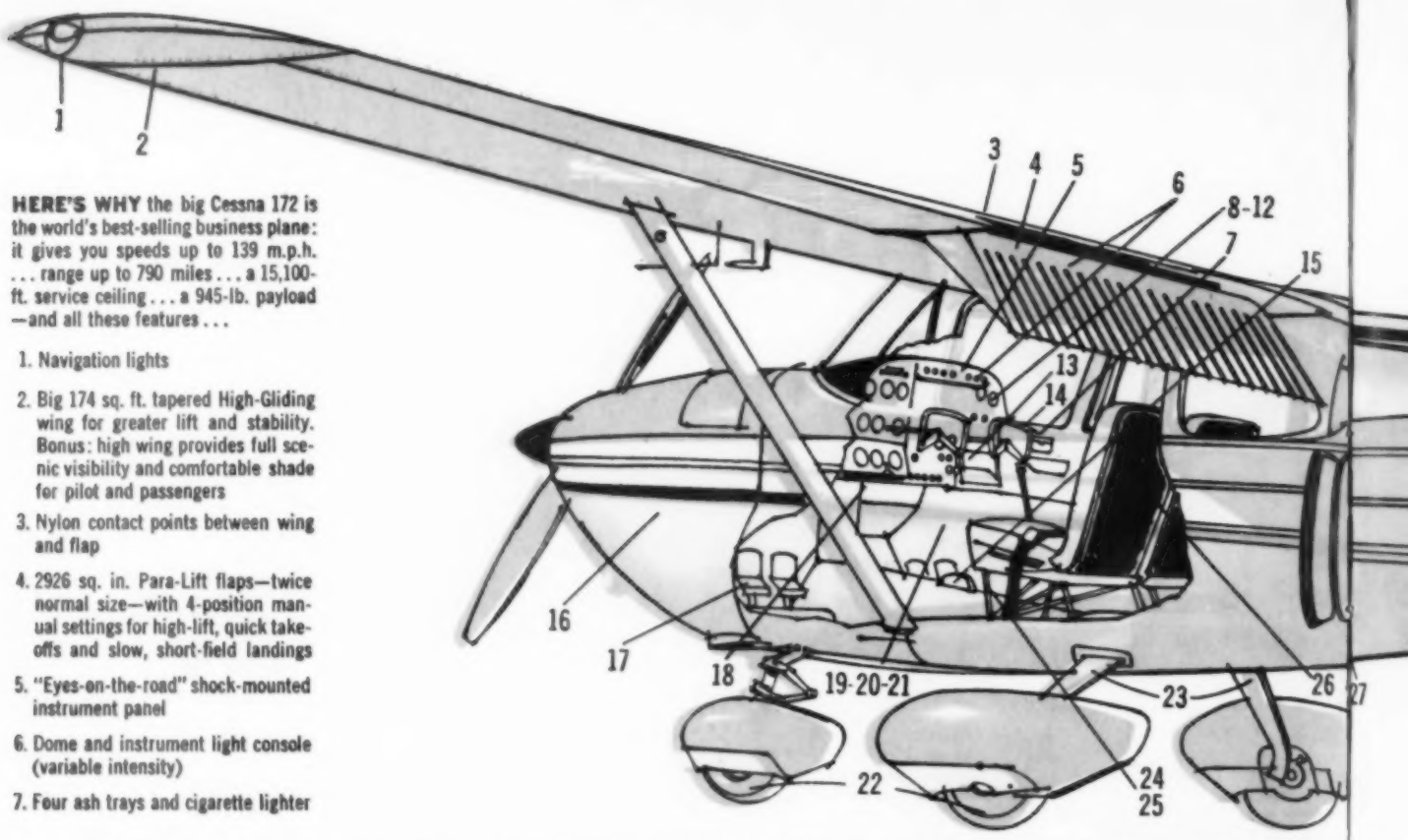
55. Clothes hanger hook

56. Attachment provisions (cargo rings, shoulder harness, and sun visors)

57. All-metal construction for strength, longer life and higher re-sale value

58. Two-color exterior paint scheme with your choice of 6 color combinations

HIGH-WING STABILITY
ASK ANY BIRD



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X-RAY PROVES NEW CESSNA 17

8. Magnetic fuel-level indicators for instant reading
9. Panel space for optional instruments and three radios
10. Recording tachometer
11. Cabin fuel-strainer drain control
12. Engine prime and starter system
13. Large size, spill-proof glove compartment
14. Comfort-contoured control wheel
15. Cabin-controlled elevator trim
16. Speed-stream cowling design
17. "Toe-touch" dual individual brakes for safe, sure stops and pivotal turning
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19. Two yard-wide doors assure maximum convenience for passenger and cargo loading on both sides.
20. Key-operated door locks
21. Fiberglas insulation and brush-applied sound deadener
22. Nylon tubeless tires
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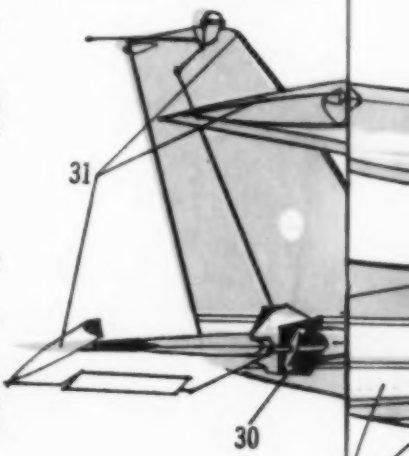
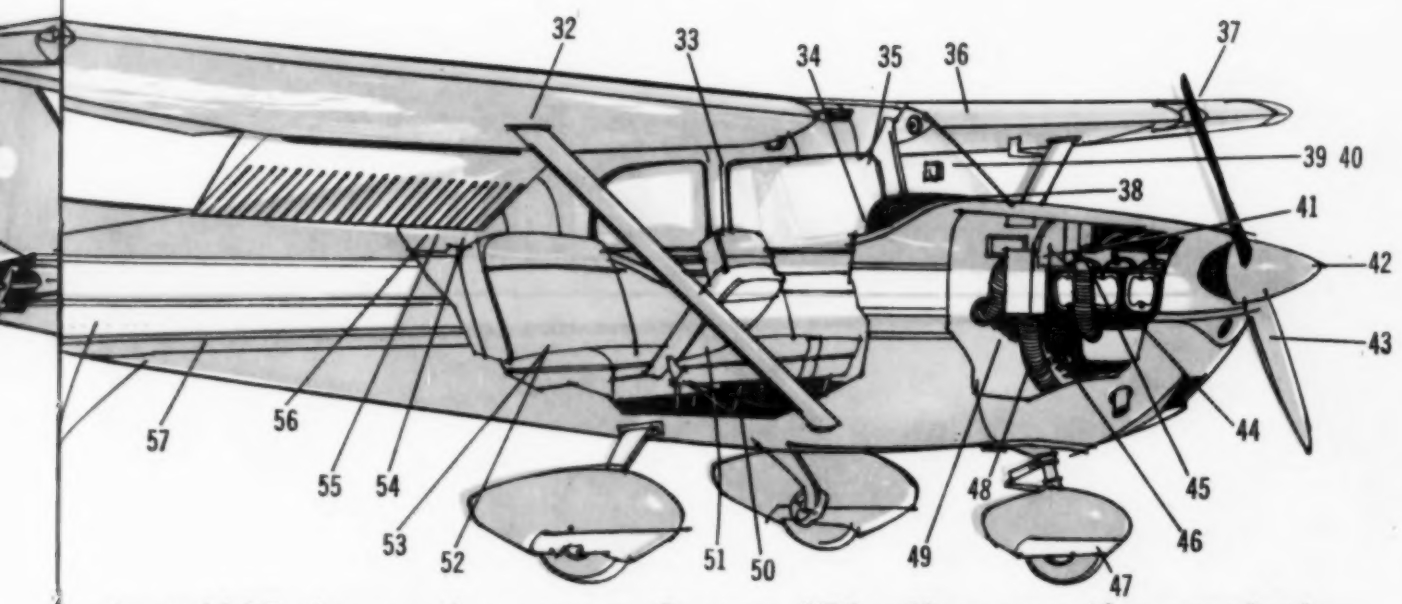


HIGH-WING STABILITY
ASK ANY BIRD

58. Two-color exterior paint schemes with your choice of 6 color combinations

NA172 SMARTEST BUY TODAY



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12 BUSINESS AIRCRAFT

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Cessna
SERVICE

Symbol of the Man on the Go...

The AUTHORIZED CESSNA SERVICE sign has a significant meaning to the **man on the go.** As a man of vision, decision and action he has found this symbol means high quality service and maintenance, a ready supply of factory authorized parts in stock when needed and reasonable flat-rate prices. These are some of the factors he took into consideration when he selected his CESSNA aircraft for the performance, comfort and operational reliability he required. If you are a **man on the go** you have a great deal to gain from the high standards and uniform services available to you at the AUTHORIZED CESSNA SERVICE symbol.

A visit to the firms listed is your assurance of service satisfaction.

Aircraft Sales Company
Gregg County Airport
Longview, Texas
Meacham Field
Fort Worth, Texas

The Air-Oasis Company
3353 Lakewood Boulevard
Long Beach 8, Calif.

Airnews, Inc.
260 E. Terminal Drive
San Antonio, Texas

Champ's Aviation, Inc.
Municipal Airport
El Paso and Lubbock, Texas

Clinton Aviation Company
Stapleton Airfield
Denver, Colorado

Coastal Aviation, Inc.
4906 Tampa Bay Blvd.
Tampa International Airport
Tampa 3, Florida

Cruse Aviation, Inc.
International Airport
Houston, Texas

Executive Aircraft Company
701 Perimeter Road
Kansas City, Missouri

Lynch Flying Service, Inc.
Logan Field Box 1575
Billings, Montana

Macon Air Service, Inc.
P. O. Box 2036
Macon, Ga.

Ragsdale Aviation, Inc.
Municipal Airport
Austin, Texas

Southwestern Skyways, Inc.
Municipal Airport
Santa Fe, New Mexico
and Ogden, Utah

Sunny South Aircraft Service, Inc.
Broward International Airport
Fort Lauderdale, Florida

Walston Aviation, Inc.
Civic Memorial Airport
East Alton, Illinois

Wings, Inc.
Wings Field
Philadelphia 18, Pa.

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

Every Pilot Needs Oxygen

By JAMES B. ARMSTRONG

Alt. ft.	PRESSURE Ins. Hg.	mm. Hg.	psi.	Temp. F.	Equivalent Oxygen Pct.	Partial Press. of Oxygen mm. Hg.
Sea Level	29.92	760.0	14.69	59	20.93	159.0
6,000	23.98	609.0	11.77	38	16.77	127.4
12,000	19.03	483.3	9.34	16	13.31	101.1
18,000	14.94	379.4	7.33	—5	10.45	79.4
24,000	11.59	294.4	5.69	—27	8.11	61.6
30,000	8.88	225.6	4.36	—48	6.21	47.2
36,000	6.71	170.4	3.29	—67	4.69	35.6
42,000	5.04	127.9	2.47	—67	3.52	26.7

Figure 1
Physical Characteristics of the Standard Atmosphere

GENERAL aviation pilots are flying a multitude of aircraft, many of them modern types with high performance, but few of these airmen have had an opportunity to become familiar with the physiological reactions which occur when man leaves his normal habitat and joins the birds. By "physiological reactions" we're referring to the pilot's need for oxygen and the oxygen problems which can and do involve every pilot. He can stop the intake of food and he will live for a week or more. He can stop the intake of water and live for several days. But if the airman, or anybody else, stops the intake of oxygen, he will die in only a few minutes.

Few flights are of such duration to create a food or water emergency but all general aviation pilots are concerned with oxygen want and its immediate problems. Because this concern is real, we must understand some fundamentals. For example, respiration and blood circulation are two inter-related processes. They keep us alive and this process consists of five main steps — first, in ventilation of the lungs; second, we have the passage of oxygen from the lungs to the blood; third, we have the circulation of the blood; fourth, we have the interchange of oxygen and carbon-dioxide to and from the chest, and finally, the return of carbon-dioxide to the lungs.

The exchange of gases between an organism and its environment is known as respiration. "External" respiration is the exchange of gases between the blood and capillaries of the lungs, and the external air as we find it in the pulmonary area sacs. "Internal" respiration is the exchange of gases between the blood and the capillaries and the body's tissue cells. The smaller air sacs of the lungs are so numerous they represent an area which, if spread out flat, would be equivalent to the size of a tennis court. This gives us a tremendous reserve of absorbtive capacity — it makes it possible for a patient to have one lung removed and still lead a relatively normal life and, coupled with a lifetime of exposure, it makes it possible for people to live and work at the extremely high altitudes of the Andes in South America. This is also what makes it possible for us sea level dwellers to fly up to 10,000 ft. without the need for extra oxygen.

Why We're Vulnerable

But to familiarize ourselves with our critical dependence on oxygen for accident-free flying, let's remember that the air we breathe is a mixture of gases and basic laws of gases govern the way our body and its cells handle this air or gas. For example, Boyle's law dictates that, if we hold the temperature constant, the volume of a gas is inversely proportional to the pressure. Henry's law states that the mass of soluble gas that dissolves in a definite mass of a liquid at a given temperature is directly proportional to the partial pressure of that gas (this is the law which explains decompression sickness from the trapped gases, such as the "bends"). Then there's Dalton's law, which tells us that the pressure exerted by a mixture of gases is equal to the sum of the separate pressures. Finally, Charles' law says the volume of a gas with a constant pressure varies directly as the absolute temperature.

As we become more familiar with our oxygen requirements, we learn that the air we breathe is chemically composed of roughly 79% nitrogen and 21% oxygen, with negligible amounts of various other gases thrown in. This relative composition does not vary appreciably with altitudes up to 70,000 ft. Since the sea level atmospheric pressure is 760 mm. of Hg. and approximately 21% of this is oxygen, the partial pressure of oxygen is 160 mm. of Hg. As a pilot climbs above sea level, the atmospheric pressure falls, as do the partial pressures of its components. So the general aviation pilot can understand the variations which occur as he climbs; we have charted them in an accompanying tabulation (see Figure 1).

But in contrast to the external air we breathe, the air inside our lungs does not have a constant ratio of the various component parts. With increase in altitude, the tension of carbon-dioxide decreases only slightly and the water vapor in the lungs maintains a constant pressure of 47 mm. of Hg. At sea level the partial pressure of carbon-dioxide is 40 mm. of Hg. This, when added to the partial pressure of water vapor, is 87 mm. of Hg., which represents 11% of the lung volume. The partial pressure of oxygen is 106 mm. of Hg. and this represents 14% of the lung volume. The remaining 75% of lung volume is occupied by nitrogen (see Figure 2).

Now, let's see what happens to the lung gases and their ratios when the pilot climbs to 18,000 ft., where the atmospheric pressure is reduced to half, or 380 mm. of Hg. The pressure of carbon-dioxide is reduced to 36mm. of Hg. but the pressure of water vapor remains the same and so this combined space is now 22% of the lung volume. The partial pressure of the oxygen in the lungs is now only 50 mm. of Hg. With this decreased pressure of oxygen, we thus can see that the lungs will have a more difficult time of airating the blood — at this flight level, the arterial blood is only 71% saturated with oxygen as compared with 96% at sea level. An understanding of this makes it obvious to us that this declining ratio of oxygen in the blood will worsen, as charted in Figure 3. This chart shows that, without the

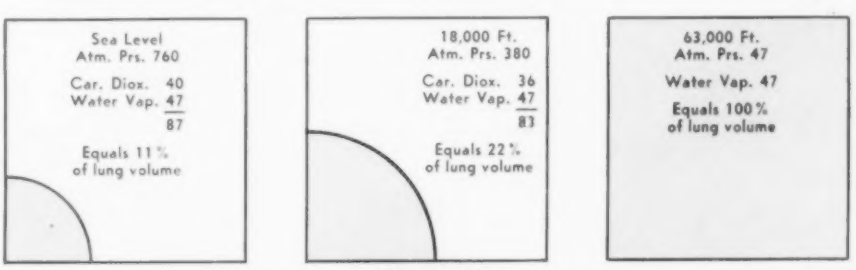

Figure 2
Relationship of Partial Pressures to Lung Volume
(Numbers give pressures in mm. of Hg.)

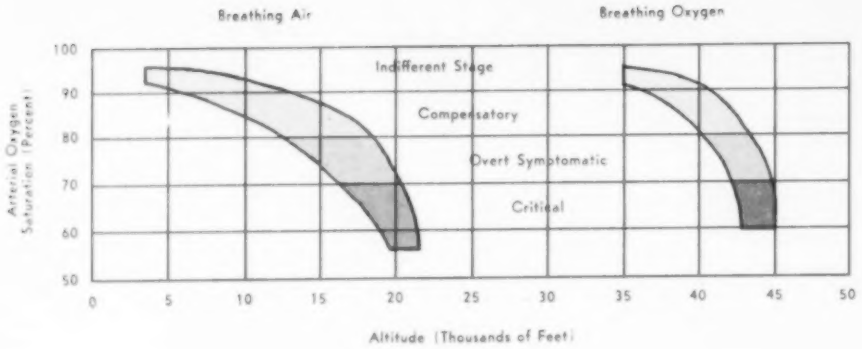

Figure 3
Effect of Ogygen Want at Various Altitudes

—(Chart from "Human Factors in Air Transportation" by Ross A. McFarland, copyright 1953, McGraw-Hill Book Co., Inc.)

use of oxygen equipment, the average person fails to maintain an oxygen level in the arterial blood that will sustain life at approximately 21,000 ft. It also shows that, even when breathing 100% oxygen, the increase of the volume of carbon-dioxide and water vapor, coupled with the decrease of pressure at higher altitudes, will eventually occupy all of the lung volume (see Figure 2). This point is known as the "critical pressure altitude" — at 63,000 ft., the atmospheric pressure is equal to that of the body's water vapor and, without protective equipment, the blood will literally boil. Thus, we can see why high-altitude aircraft must have pressurized cabins and, for all altitudes above 40,000 ft., pressure suits.

What Happens

But in general aviation, we're concerned with unpressurized equipment. So let's familiarize ourselves with the effects of oxygen-want (hypoxia) on the skill of pilots who fly up to about 20,000 ft. The first changes affecting the safety of flight begin at only about 5,000 ft. above sea level, where blood saturation has decreased from 96% to 93% — it is here that peripheral vision and night vision begin to fail. At 10,000 ft., the oxygen blood saturation has dropped to below 90% — here, even during the daytime, our central vision has begun to fall off and our night vision is further impaired. More importantly, however, it is here that the first physiological changes start to occur. Judgment becomes variable and the problems of simple mathematics become harder to solve. At 15,000 ft., with blood saturation down below 84%, we experience definite changes in our cardiovascular-respiratory systems and our mental functions of memory and reasoning are now definitely impaired, as is our vision. Errors in judgment are more frequent. At 18,000 ft., the compensatory mechanisms of our body begin to fail — our hands begin a coarse tremor and personality changes occur, similar to those after about three Martini's. Judgment and vision are now greatly impaired and the ability to fly an airplane is seriously hampered. More seriously, however, the personality has changed to that of a happy drunk with no regard for personal safety or the safety of others in the airplane with him. At 22,000 ft., with blood saturation down to about 66%, most people collapse in minutes.

This is serious business. The time to understand it is now — before it happens to you. It is very difficult to convince an intoxicated person that he is intoxicated and is beyond the proper performance of duty. It is just as hard to tell a pilot suffering from hypoxia that he is not flying at his best. Maybe you've heard of "rules of thumb" to go by in detecting when you're suffering from oxygen-want or hypoxia, but the facts prove that it is foolhardy to depend on them — don't wait until the fingernails or the lips of a flying associate turn blue. These are late and inaccurate means of determination — the person's nails may appear cyanotic all the time; don't watch your own nails for the simple reason your brain is suffering from lack of oxygen the same as your nails and you may think your nails are okay when they're actually quite blue. Remember this — all the facts of experience, as well as research, add up to one simple, but extremely important, warning for all of us to observe. Anytime we are above 10,000 ft., we need supplementary oxygen, and 15,000 ft. is the maximum that we can safely climb to and descend from immediately without supplementary oxygen.

Variations in Tolerance

It is interesting to consider some of the factors which influence hypoxia. For example, there are individual variations. One person can tolerate a given altitude better than another. But this does not mean he should expose himself to the higher altitudes. Experience shows that as one is exposed to altitude at a more or less continuous rate, his tolerance drops. Smoking of tobacco influences individual variations. The average smoker of one pack of cigarets a day carries better than 5.7% of his blood saturated with carbon-monoxide from inhaling the smoke. At sea level, the one-pack-a-day smoker lives and reacts at an equivalent altitude of 4,000-5,000 ft. and his altitude tolerance is reduced by that amount, making him more susceptible to hypoxia than the non-smoker. As another example, the effect of alcohol on altitude tolerance is tremendous. The alcohol in the blood interferes with the transportation of oxygen and the poisoned cells cannot properly use the oxygen they do get. As an airman climbs to a moderate altitude with alcohol in his blood, he is more vulnerable to the effects. At altitudes of 10,000-12,000 ft., 2 drinks have the same effect as 4 drinks at sea level. There is a striking similarity in the behavior of a person suffering from oxygen-want and one under the influence of alcohol. The most serious danger is the insidious way the effects are manifested, causing a gradual and unwitting failure of sane judgment.

Fatigue reduces altitude tolerance. Mental strain, anxiety and fear deplete the energy reserve and the body must produce greater stimuli to respond to ordinary conditions. This results in a deterioration of skill and while the body is working harder under the conditions of fatigue, it becomes more susceptible to hypoxia. Keeping the cabin of an aircraft at an uncomfortable temperature increases the body activities and tends to use, at a faster rate, the oxygen in the blood and the energy reserve. Physical activity does the same thing and uses oxygen faster, making it necessary to have more oxygen in order to maintain proper performance.

General aviation pilots have a variety of supplementary oxygen systems or equipments available to them. These even include small, portable oxygen systems. Any time a pilot is above 10,000 ft., his flight performance suffers without supplementary oxygen. Just how much it suffers depends on such factors as his altitude tolerance, how much he smokes, how much he drinks, how much he sleeps, his emotional anxiety, his physical activity, the temperature of his cabin and the extent to which he is fatigued. The only safe way to fly above 10,000 ft. is to understand the problems that occur and make use of supplementary oxygen.

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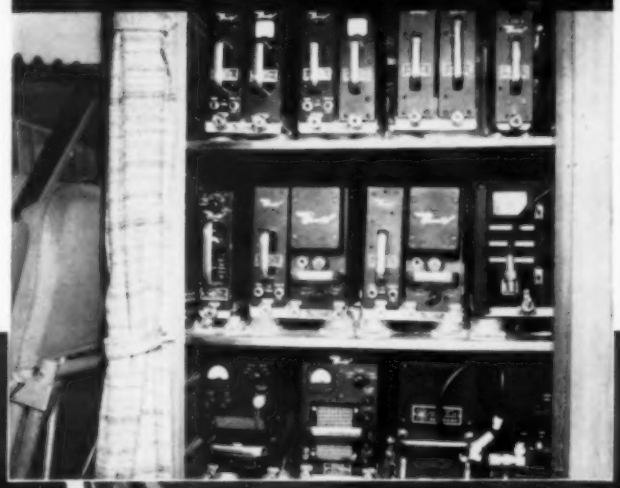

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AIR REPORT

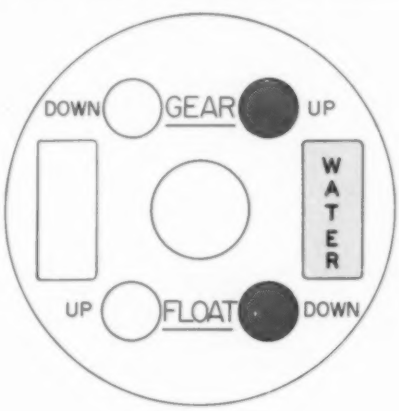
(Continued from page 5)

LIGHTPLANE SHIPMENTS BY MANUFACTURERS totaled 1,812 planes worth $35.2 million in billings during the first quarter of 1961, down 521 planes and $9.4 million in billings from the first quarter of 1960. Deliveries for January-March for both years, according to the Utility Airplane Council of the Aerospace Industries Association, with figures in parenthesis for the first quarter of 1960, were as follows: Aero Commander, 38 planes and $3 million in billings (vs 24 planes at $2.9 million last year); Beech, 246 planes at $10.9 million (vs 284 at $11.7 million); Call Air, 4 planes at $37,000 (vs 5 at $35,000); Cessna, 729 at $11.1 million (vs 1,087 at $17.5 million); Champion, 15 at $97,000 (vs 64 at $361,000); Lake, 2 at $50,000 (none reported last year); Mooney, 45 at $814,000 (vs 50 at $672,000), and Piper, 733 at $9.1 million (vs 805 at $11.3 million); totals, 1,812 planes at $35.2 million during Jan.-Mar., 1961 vs 2,333 planes at $44.6 million during Jan.-Mar., 1960.

NEWEST VERSION OF TURBINE-POWERED BELL HELICOPTER SERIES is the U. S. Army HU-1B model of the Iroquois, shown in Bell Helicopter's Phase One flight test. Last "A" model Iroquois will be delivered in June, to be followed by B models.

HIGH-ALTITUDE HOVERING was demonstrated recently at Pikes Peak, Colorado, by Bell Helicopter's new turbo-supercharged Lycoming-powered 47G-3B utility helicopter. It is shown with 8 men crowded aboard, hovering 25 ft. off the ground at an elevation 11,837 ft. above sea level. It lifted a 3,472-lb. gross weight at that altitude — more than double its basic empty weight of 1,713 lbs. and 622 lbs. more than its normal 2,850-lb. gross weight. In other tests the same day, Bell Pilots Al Averill and Bill Quinlan landed on the 14,110-ft. summit of Pikes Peak. —(Bell Helicopter Photo.)

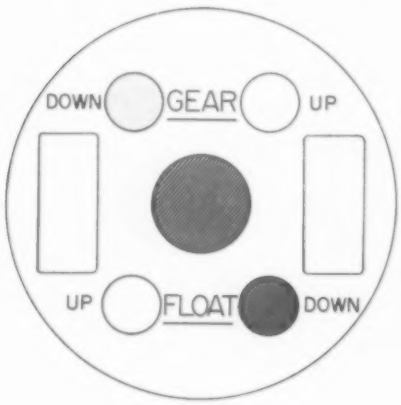
Field Landing



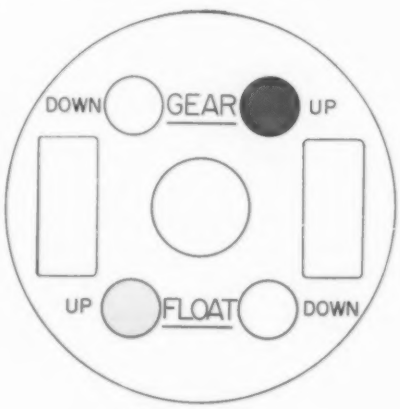
Water Landing

Riviera Amphibian's Gear-Float Indicator

What is expected to be a "foolproof" position indicator for landing gear and floats will be featured in Lane Aircraft's new 4-place, high-performance, Italian-built Riviera amphibian. G. L. Spear, executive vice president of Lane, said a practical indicator had long been sought for amphibian aircraft but that the Riviera indicator is the best yet perfected. Field landing indicator lamps are green and those for the floats are red, with the "water" lamp blue. Four combinations are shown in the accompanying sketches. They are self-explanatory. In the "No Landing" configuration, large red warning lamp at center flashes and horn sounds when gear and floats are down and throttle is retarded.



Do Not Land



Normal Flight

AERO COMMANDER, INC., Bethany, Okla., has promoted E. B. (Gene) Charles to be vice president-sales and Thomas Sim to be vice president-marketing. Colonel W. F. Rockwell, chairman of Rockwell-Standard Corp., Aero Commander's parent company, told stockholders at their annual meeting that new Aero Commander models had been favorably received and 1961 prospects for sales and earnings are "very bright." Directors elected Aero Commander officers, in addition to Charles and Sim, as follows: Col. Rockwell, chairman; Harry Fante, president (Fante is Rockwell-Standard's executive vice president); Thomas J. Harris, vice president-general manager; Ted R. Smith, vice president-engineereing; Eugene Burk, controller and assistant secretary-treasurer; W. M. Bailliette, treasurer; A. A. Finnell, secretary, and D. C. Johnston, assistant secretary and assistant treasurer.

BEECH AIRCRAFT SALES for the first half of its 1961 fiscal year ended

Airmen's Calendar

May 15-18—20th National Conference of the Society of Aeronautical Weight Engineers, Sheraton Hotel, Akron, Ohio.

May 26-June 4—24th International Air Show, LeBourget Airfield, Paris, France.

May 27—11th All Women's International Air Race, Lehigh Acres, Florida, to Nassau, BWI. For details, write Mary Barrer.

June 2-3—12th National Maintenance & Operations Meeting, Municipal Airport, Reading, Pa.

June 10—OX5 Club of Texas 1961 Convention, Baxter House Motel, Dallas.

June 13-15—37th Aviation Distributors and Manufacturers Association Meeting, Dennis Hotel, Atlantic City, New Jersey.

June 18—Dawn Patrol, Haines Airport, Three Rivers, Michigan.

June 24—1st Annual Pacific Northwest National Pilots Association Flight Safety Seminar, Flightcraft Hangar, Portland International Airport.

June 24-27—Reunion for World War I Overseas Pilots, Air Force Museum, Wright-Patterson AFB, Ohio.

June 25—Air Force Museum Day and Air Show with World War I Fighters, Wright-Patterson AFB, Ohio.

June 26-27—1st Annual Flying Osteopathic Physicians Association Meeting, Broadmoor Hotel, Colorado Springs.

July 8-12—15th Annual AWTAR Powder Puff Derby, San Diego to Atlantic City, open to all licensed women pilots with entries closing June 15.

July 25-Aug. 10—International Trade Fair and Aviation Exposition, McCormick Place Exposition Center, Chicago, Ill.

March 31 totaled $36.7 million and included $23.2 million in business air-

BEECH AIRCRAFT CORP. has taken over distribution of Zep Aero oxygen systems through Beech outlets and offers Zep systems as optional on all Beech models. Shown is a new 2-lb. compact portable Zep Aero system for home or other use. Zep Aero makes wide variety of oxygen systems.

NEW SLIM-LINE NACELLES FOR SUPER-V LIGHT TWIN are only 22.7 ins. thick for new Lycoming O-360-A1C engines with Bendix automatic fuel pressure carburetor. New engines eliminate scoop which formerly extended beneath cowl.
—(Bay Aviation Services Co. Photo).

craft sales. Mrs. O. A. Beech said the firm's business plane sales "are a part of the upward trend; it's significant, we believe, that our complete line of Beechcraft business airplanes are finding a steady market." She reported export sales up 71%.

BEECH AIRCRAFT AND BRITTAIN INDUSTRIES have announced jointly that Beech will market under its trademark an adaptive, inexpensive flight control system manufactured by Brittain to Beech requirements for lightplanes. Under the agreement, Beech will market the new flight control system through its distributor-dealer sales-service network. The two firms also announced that Beech will market under its trademark 20-gal. external wingtip fuel tanks for both the Bonanza and the Debonair, with Brittain producing the tanks to Beechcraft standards. Price of the flight control was not listed immediately but the 20-gal. tip tanks are priced at $1,190 per pair.

CESSNA'S NEW LOW-DOWN-PAYMENT PURCHASE PLAN, under which the 4-place Model 172 can be purchased for $995 down and the 2-place Model 150 can be purchased for $750 down, is expected to stimulate sales of the two models. The plan calls for the customer to pay 10% down with the balance payable over 48 months at 6% interest per year. Frank Martin, Cessna marketing manager, said: "Purpose of the new, low-down-payment purchase arrangement is to attract business airplane ownership by individual salesmen and firms that hesitate to tie up working capital under many present financing plans, but whose travel requirements make ownership of an airplane ideal for expanding marketing operations without increasing costs. The Model 172 operating costs are 9 cents per mile, based on national averages for 60,000 miles per year. Our new financing plan is designed to attract these customers who can now acquire an airplane and utilize the savings to pay for it."

WINNER OF COMPETITION FOR U. S. MARINE CORPS ASSAULT HELICOPTER ORDER is the HRB-1 special military version of the twin-turbine Boeing Vertol 107 helicopter. Photo was retouched to show Marine markings. Two General Electric T-58-8 turbines power the 107. It features a power blade-folding system and it can be loaded in 8 mins. with an integrated loading system and rear-loading ramp. For rescue missions, it can fly 90 nautical miles, rescue 20 persons, then return to the take-off point. It has built-in flotation.

THIRTY YEARS OF FIXED-BASE OPERATIONS were celebrated last month in Helena, Montana, at a dinner party staged by Elizabeth (Bitty) Morrison Herrin, operator of Morrison Flying Service, in honor of her former husband's founding of the firm. It was held during the two-day Montana Aviation Trades Association convention, with Bitty Herrin as chairman and "queen" of the event.

TWO AVIATION TASK FORCES, established by President Kennedy to blueprint the nation's aviation development during the 1960's, have been announced by FAA Administrator N. E. Halaby. One task force, known as "Project Horizon," will study and recommend national aviation goals. A second and technical task force, known as "Project Beacon," will study the problem of air traffic management and recommend a system to insure the safe and efficient utilization of the airspace. Members of "Project Horizon" are Fred M. Glass, chairman; Stanley Gewirtz, vice chairman; Dr. Leslie A. Bryan, general aviation and education; Gerald A. Busch, economics and forecasting; Paul Reiber, international aviation; Francis T. Fox, airports; Selig Altschul, finance; Jack Loosbrock, editorial. Glass has established an 18-member advisory board to serve the project. They include W. B. Harding, Smith, Barney & Co., New York; E. P. Curtis, Eastman Kodak, Rochester; J. F. Lederer, Flight Safety Foundation, New York; J. B. Hartranft, AOPA; Dr. William Requarth, General Aviation Council; C. P. Barnett, NASAO; Brig. Gen. J. P. Adams, ALTA; Coates Lear, attorney; R. A. Brown, Flight Engineers union; C. N. Sayen, Air Line Pilots union; F. S. Pittinger, AAAE; J. J. Moraski, Air Traffic Control Assoc.; S. G. Tipton, ATA; George DeMent, Airport Operators Council; Gen. Orval Cook, AIA; L. W. Pogue, attorney; Prof. George Baker, Harvard; and Bruce Sundlun, attorney. Members of "Project Beacon" include R. R. Hough, chairman; H. B. Combs, G. C. Comstock, J. F. Digby, William Littlewood, R. C. Newhouse and Nathaniel Rochester.

LEONARD W. JURDEN, who retired recently as regional FAA administrator of the Third Region, has established a consultant enterprise for advising radio and television companies on site location for tall towers and the presentation of cases before the Federal Aviation Agency. Jurden resides at 442 69th Street, Kansas City.

BELL HELICOPTER COMPANY has promoted Hans Weichsel, Jr., to be vice president for military contracts, according to E. J. Ducayet, president. . . . **AIR ASSOCIATES** has named Henry M. Stewart of Wynnewood, Pa., as director of marketing. . . . **AIRPORT OPERATORS COUNCIL** has expended its executive staff with appointment of Robert W. Bratsberg as economic assistant to E. T. Burnard, executive vice president.

HARPER AVIATION SCHOOL OF AERONAUTICS, San Carlos, California, has established a competitive flying scholarship program available to June graduates of all San Mateo County high schools. One of the deciding factors in selecting winners will be a short paper on "How Flying Can Broaden My Horizons." First award is an $800 private pilot's course, and second and third awards are $100 beginners' courses.

HARRY A. BRUNO, second from left above, was honored at a recent joint dinner of the American Legion's Air Service Post 501 and the Earl Birds at the Lotos Club in New York, receiving a bronze plaque recognizing 51 years in aviation after his solo flight in 1910. With him, left to right, are General Laurence Kuter, Lt. Col. E. A. Goff, USAF-Ret. and Rear Admiral H. B. Miller, USN-Ret.

MORANE-SAULNIER is doubling its production rate of 100-hp. and 145-hp. "Rallye" utility planes. By July, the French factory will be turning out 30 Rallyes monthly and this will reach 60 per month by March, 1962.

WALLY SCHANZ, president of the Florida Aero Club, is pictured at right trying to tell his amused and tolerant son, Ron, a USAF pilot, how the Ole Man flew for the Navy during World War II. Ron was top man in class receiving their wings last year at Laredo.

NEW LOCKHEED P3V-1 "ORION" SUBMARINE HUNTER for the U. S. Navy carries crew of 10 on missions lasting over 8 hrs. at speeds nearly twice as fast as that of its predecessor, the Lockheed P2V Neptune. It is powered by four Allison T56A-10W turboprop engines, has 99-ft. span and 116-ft. length, and can deliver nuclear depth charges, torpedoes and rockets against submarines.

—(Lockheed Photo.)

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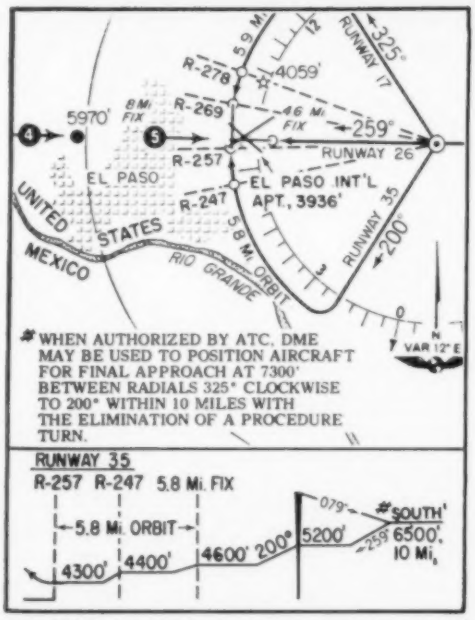
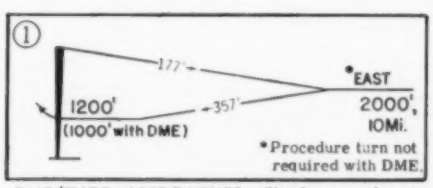


DME ORBITAL APPROACHES. Any airport near a VOR/DME can have an "ILS Approach". With DME you fly a circle whose radius is the distance from the VOR to the runway. "Outer" and "middle" markers are determined by radials from Omni as this new DME approach to El Paso indicates.

(Charts reproduced courtesy Jeppesen and Co.)



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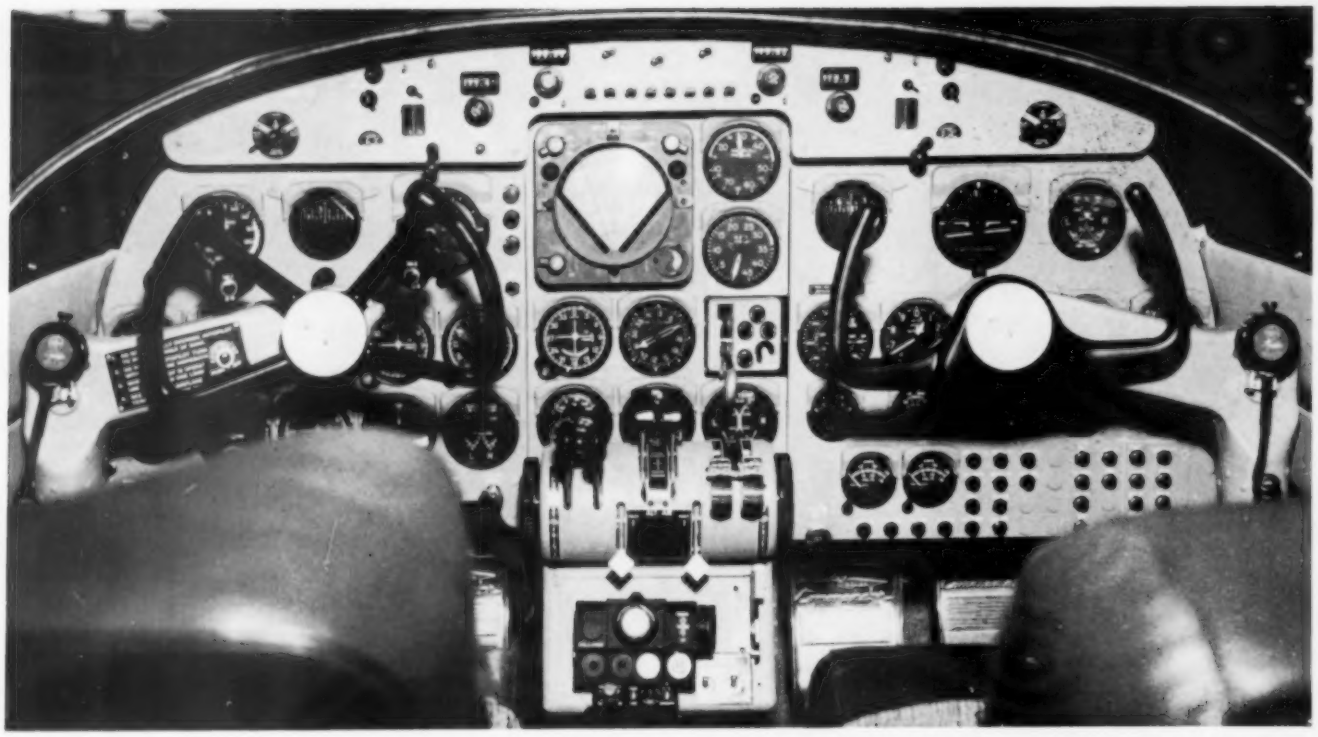


Five-inch radar indicator dominates panel. Note top panel's separate CD-1 course directors at each end, dual ADF's, dual omni tuners and dual communications tuners. Three switches at top are (1) transceiver throw-over, (2) heading from either CD-1 and (3) omni info from either omni. Other switches are for audio.

—(Brown Aero Photo by Tom W. Collins.)

'Automatic' 680F Commander

IN addition to cruising 244 mph., the new 680F Aero Commander has a 3,200-lb. useful load and this combination enables owners to install several hundred pounds of electronics and other equipment for maximum usefulness. The new 680F shown on this page, custom-equipped by Brown Aero of Dallas for Bobby M. Burns, Texas oil operator, has 487 lbs. of equipment. But even so, it will carry 2,700 lbs. including full tanks of 223 gals. of fuel plus 1,316 lbs. for people and baggage.

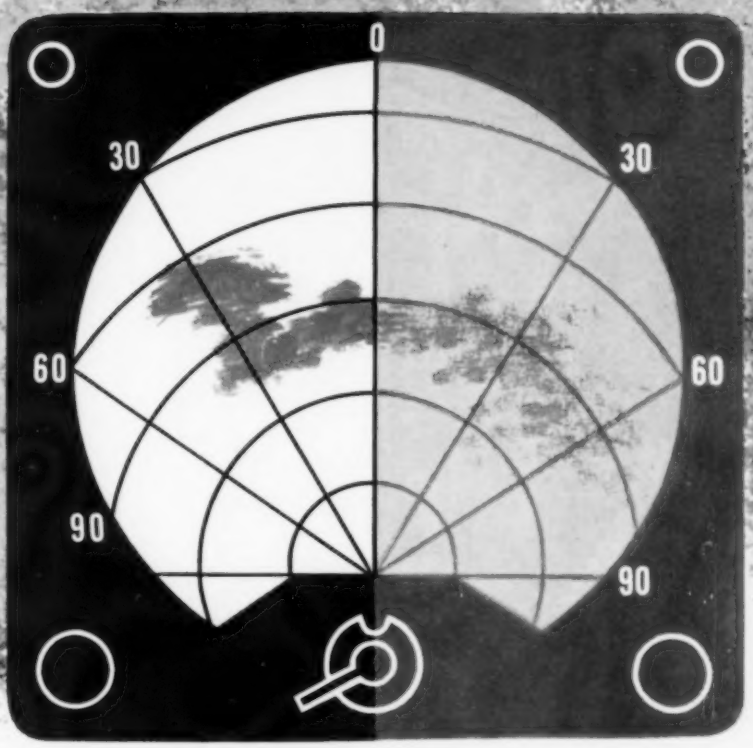
The Bobby Burns 680F was the first certificated for RCA AVQ-50 radar, Motorola's modified L2-2C autopilot (reduced gear ratios for smoother action at high speeds), and the Dynavia omni coupler. The Dynavia is tied into an ARC slaved gyro to eliminate precessing. With this installation are two ARC CD-1 course directors and 3 ARC omni indicators, 2 of which are used on separate CD-1's for wind correction on omni tracking. Coupled with the Dynavia, the autopilot flies the airplane from omni to omni, through pre-set receivers and switching, for completely automatic cross-country flying.

Bob Saxon, superintendent of electronics for Brown Aero, said other custom installations in the Burns 680F include dual ARC-210 transceivers, dual ARC-15F crystal-controlled omni's, Collins 51X3 omni, dual ARC-

(Continued on page 62)

"Automatic" 680F Aero Commander is finished in red, white and blue colors. It is second 680 owned by Bobby M. Burns, oil operator-sportsman pilot.

READY FOR THUNDER-BUMPERS?



BE SURE WITH A RADAR CHECK AT OHIO AVIATION

How's your picture clarity? . . . Any sign of spoking? . . . Satisfied with stabilization?

You'll want no question marks in your radar operation in the coming months for you'll be flying in the critical maximum radar usage season. Be sure it's operating perfectly when you need it most. For "20-20 vision", get a radar check at Ohio Aviation.
Member Aircraft Electronics Association

THE OHIO AVIATION CO. Beechcraft Distributors
Cox Municipal Airport, Vandalia, Ohio

AZTEC TO MEXICO

(Continued from page 29)

paper-type air filters in the scoop are replaceable and give excellent filtering.

The cabin interior marks a new high for Piper. All five cabin seats are plush and can be adjusted fore and aft for relaxing change of position. Front and middle seats can be reclined and are equipped with soft, adjustable head rests. Ventilation is excellent and the cabin is extremely quiet. Four color combinations are available for interiors. Seats are upholstered in genuine leather.

The two Lycoming O-540-A engines are rated at 250 hp. at 2,575 rpm., with a compression ratio of 8.5:1. They run quite rich at full rich position and must be leaned out under all cruise conditions regardless of altitude. The propellers on the Aztec are controllable, full-feathering, constant-speed Hartzells. On ground check you move the prop control in and out of feather position quite rapidly to prevent RPM from dropping below 1,400 due to the very fast feathering action.

Best take-off speed is about 80 mph. under normal conditions —80 is also minimum controllable single-engine airspeed. Landing gear is normally extended below 150 mph. and flaps below 125, the lower the better.

The Aztec's one-ton payload came in handy for we carried everything but the kitchen sink — note baggage also stowed on wing at this stop.

Flying into Mexico these days is fairly simple. From time to time you hear reports of *gringo* pilots having trouble South of the border but we've found from long experience that more often than not American pilots who get their nose out of joint have not been briefed on the way to do business in Mexico. Old border operators are the best source of info as to what to expect and the proper way to clear customs, use RAMSA, and above all, they will advise you to take a friendly attitude with lots of patience when dealing with the officials. Point one: smile and relax. Point two: don't hurry.

The Mueller brothers of El Paso area, Piper distributors, were exceptionally helpful to us, recommending we fly direct El Paso to Hermosillo and clear customs there. You couldn't ask for better service than we received at Hermosillo — courteous, efficient handling. We bought our individual tourist cards at the airport at $3.10 each, paid a $1.40 landing fee, gassed up and were on our way in an hour. On the return flight we cleared out of La Paz. It being Good Friday, a national holiday, we were stuck $27 customs clearance fee but remember, the good old U. S. Customs stick foreign and domestic pilots for off hours and holidays, too.

Everyone should file a flight plan between controlled airports. In Mexico, the low frequency ranges are excellent and all towers guard 118.1. By speaking simple, distinct English, you can generally be understood, even though repetition is sometimes necessary. If you speak in Spanish, you'll be answered in rapid Spanish, so it had better be good. WAC charts cover all of Mexico.

We had more difficulty in La Paz than in Hermosillo. The latter airport had a tank truck for fueling while La Paz used 55-gallon drums, hand pumps and chamois-skin filtering. Weather info is generally available at all controlled Mexican airports but with fine weather most of the year down in Lower California, we couldn't speak with authority on the quality of the weather information. We had to fly on top for only one leg — from Nuevo Casas Grandes to Hermosillo.

We can't be too complimentary of the facilities at Rancho Las Cruces and Palmilla, the two resorts near the tip of the peninsula (about 30 minutes flying time apart) which are owned and operated by two well-known airmen, Bob Fisher of Keokuk, Iowa, and Rod Rodriguez of La Jolla, California, and Rancho Las Cruces, both of whom spend many months of the year personally managing the resorts. If you're interested, their reservations office is at 2440 Stillwater Road, West Lindbergh Field, San Diego 1, Calif.

Bob and Rod have built their two havens for airmen on the proposition that the aviation customer wants and

Fishing is always excellent off the rugged peninsula at Palmilla, whose 3,200-ft. landing strip is pictured below at the tip of Lower California.

PIPER AZTEC for '61 DOES MORE FOR YOU

even with

FULL EQUIPMENT

COMPLETE 2½ IFR RADIO, ADF, AUTOMATIC FLIGHT

even with

FULL PASSENGER LOAD

FIVE 170-POUND PEOPLE WITH KING-SIZE ROOM FOR THEIR COMFORT

even with

FULL FUEL

144-GALLON STANDARD CAPACITY • UP TO EIGHT HOURS RANGE

YOU'RE STILL NOT OVERLOADED!

In fact you still have more than 175 pounds weight allowance *left over* for baggage or other equipment. No other over-200-mile-an-hour, 5-place twin in the Aztec's class can make that statement.

Check the Aztec before you buy any twin. See your Aztec dealer or write for '61 Aztec brochure, Dept. F-5.

PIPER AIRCRAFT CORPORATION
Lock Haven, Pennsylvania

MORE PEOPLE HAVE BOUGHT PIPERS THAN ANY OTHER PLANE IN THE WORLD

Las Cruces Palmilla on the tip of Baja California peninsula is as modern as any hotel or resort in the States. We enjoyed its comforts and food as well as its fishing.

deserves the best. Their Lockheed Lodestar hauls food and passengers down twice a week out of San Diego so you don't have to worry about the pangs of *turista*. Having been there once before, we're typical of the rest of the customers who will return every chance they get. To find such beauty spots so remote and yet so accessible, being under four hours flying time from most border points, makes you realize what the modern airplane, especially the light twin, has to offer for the overworked business executive who occasionally needs to get away from it all. Even the yachtsman with plenty of time on his hands can not touch the airplane owner in this exclusive accessibility to far away places, unadulterated by the ordinary run of tourists who contaminate so many beauty spots across the face of the globe.

Most airmen fly to Lower California for the big marlin and other denizens of the deep. The Sea of Cortez, better known as the Gulf of California, is the greatest natural fish trap in the world, abundant in all forms of marine life, including the great white whales, whose breeding grounds are nearby. You name the kind of fishing you want and a *simpatico* Mexican crew of any one of twenty well-kept boats will see that you come home loaded. We often wonder why so many sportsmen settle for less than light twins like the Aztec, and out-of-the-world places they can take you.

In addition to the sun-splashed beauty and incomparable climate of Baja California, its rocky, island-splotched shoreline and Mediterranean-like water, we enjoyed for the second time some of the most superb flying vistas on the North American continent between Los Mochis and Nuevo Casas Grandes, where lies the Grand Canyon of Mexico. This wild and rugged terrain beggars description. Vastly different from our own Grand Canyon because of the forests and streams, it is just as awe-inspiring, far more pristine and seemingly impenetrable.

Such wild and remote country and such comfortable and picturesque spots as Las Cruces and Palmilla epitomize the real reward and glory of light-twin utilization and sets the airplane owner completely apart from his fellow man. The more remote and out-of-the-ordinary your destination, the more this realization comes home. From such an aerial voyage stems the unshakeable conviction that the light twins are certain to grow in popularity.

JET COMMANDER

(Continued from page 25)

available for the windshield and wing and tail leading edges, the latter being electric boots. Its 28-volt DC electrical system will be supplemented by an AC power system for large electrical loads required by radar, anti-icing and dualized nav-com systems. All system components will be located in a compartment, with large door for easy access, behind the pressure bulkhead in the fuselage and aft of the wing trailing edge. This centralizes the installations and their servicing.

All landing and navigation lights and antennas will be flush-mounted. In addition to the dualized cabin pressurization system, pilots are provided with separate oxygen systems and each passenger seat will have automatically-ejected oxygen masks.

DE HAVILLAND JET

(Continued from page 26)

of operating from small fields, easy to fly and equipped with simple systems," Fossett said. "It will have a pressurized cabin slightly larger than that of the familiar DH Dove, seating crew of two and 6 passengers in luxury or seating 8 passengers in airliner comfort."

The de Havilland organization has served civilian flying for more than 30 years and has longer civil jet aircraft experience than any manufacturer in the world. The DH-125 will be certificated under airline transport standards and requirements.

Fossett said de Havilland is building 30 of the executive jets in the first production batch. The prototype will fly before Spring of 1962 and deliveries will begin in 1963.

FIRST PLANE PRODUCED IN NEW LOCKHEED-AZCARATE FACTORY IN MEXICO is shown above after it was rolled from the plant at San Luis Potosi on March 21 and christened "El Mexicano" in ceremonies celebrating the inaugural flight. Known as the LASA 60, the work plane is powered by a fuel-injected 260-hp. Continental engine equipped with an exhaust-driven turbo-supercharger. It has excellent altitude performance, with sea level power available up to 15,000 ft. Identical plane is being produced by two other Lockheed Aircraft International affiliates — Aviones Lockheed-Kaiser, Cordoba, Argentina, and Aeronautica Macchi, Milan, Italy.

NEW! 8 OUNCE *Glideslope* RECEIVER is built-in the KX-110 COMM/VOR/ILS PACKAGE

10 WATT TRANSMITTER—3 RECEIVERS

This new addition to the *King Plan for Radio System Progression* adds ILS utility to the King KX-100 System without adding to space requirements. The entire unit is panel mounted (6½" x 5¼" face plate) and weighs only 9 pounds including a separately mounted, transistorized power supply (14V or 28V). You get all this for only **$1495.** (14V)

COMM — 90 channel crystal controlled Transceiver (118.0 to 126.9 mc inclusive), *all the channels you will ever need to operate in any terminal area* in the U.S. 10 watt transmitter power with receiver sensitivity to match.

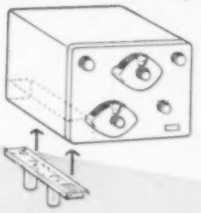
VOR — 100 crystal controlled channels (108-117.9 mc) covers all omni and localizer channels. Separately tuned for *simultaneous* use with COMM Transceiver.

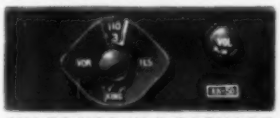
ILS — *Glideslope receiver is built-in.* 10 crystal controlled Glideslope frequencies are paired with localizer frequencies for automatic tuning.

EASY INSTALLATION! The KX-110 is the simplest and easiest to install of all COMM/VOR/ILS packages. (Almost plug-in, if you now have a KX-100.)

The Only Glideslope receiver that is—

- **Panel Mounted!**
- **Only ½ pound in weight!**
- **Built-in to COMM/VOR/ILS package!**





KN-50 VOR/ILS PACKAGE

All omni and localizer channels **plus 10 channel Glideslope receiver.** Crystal controlled. 6½" x 2⅜" panel space, weight 4½ pounds, price (14V) $825.

And a Matching Omni Localizer Glideslope Converter/ Indicator

The KING KI-210

Airline accuracy, reliability. Paired with the King KX-110 or KN50, gives you exceptional reception range on omni; switches automatically to localizer *and* Glideslope when the correct localizer frequency is tuned. Your instrument breakthroughs will be perfect centerline . . . missed approaches are obsolete with the KX-110/KI-210 System.

Size—Standard Instrument 3¼" x 3¼", 10" deep.

Weight—only 2½ pounds.

Price—only $995.00.

For *complete* information and demonstration of the King KX-110 and KI-210 see your King Dealer. Write direct to King Radio Corp., if you do not know his name and location. Ask also about the new KN-50 NAV Receiver with built-in Glideslope receiver.

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OLATHE, KANSAS

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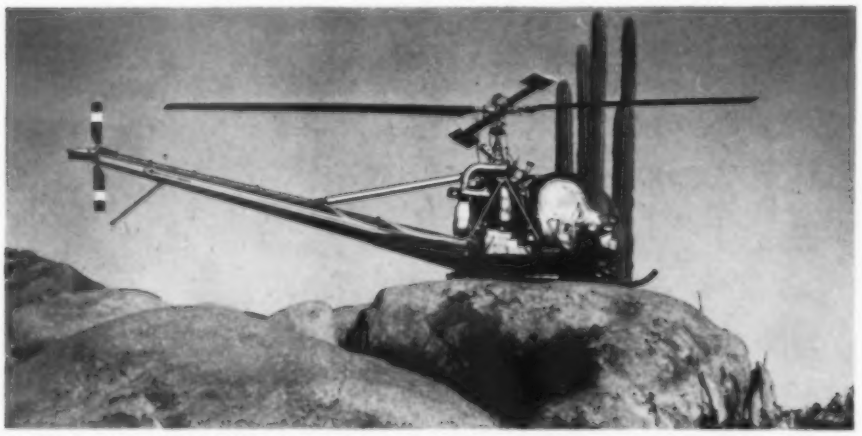
Builders of TOMORROW'S Aircraft Equipment TODAY!

PAC Hits Bogus Parts With Aviation Quality Council Seal

PACIFIC Airmotive Corporation and its subsidiary, Mid Continent Airmotive Corp., have launched a major campaign to eliminate the use of bogus parts and jerry-built service in business aircraft maintenance. Roy Backman, PAC vice president, and H. A. Smith, MCA president, said they have established an Aviation Quality Council to accredit aircraft distributors, dealers and service companies, with eligibility for the Council's seal of approval, restricted to those firms that sell aviation parts and supplies that are both factory-new and manufacturer-warranted. Service work on aircraft and components must be in conformity with factory specifications. They said the program has been endorsed by Bendix, General Motors, General Electric, United Aircraft, B. F. Goodrich, U. S. Rubber, New York Air Brake, Borg-Warner,

INTERNATIONAL AVIATION EXHIBITION will be held July 25-August 10 on the Chicago Lake Front and Butler Aviation's John Stedman (above) has been on leave to assist the non-profit Chicago Association of Commerce in drumming up exhibitors. On a national tour, Stedman visited all major U. S. commercial aircraft manufacturing establishments in recent months, flying his Bonanza on the nationwide solicitation. Nearly 1,000,000 people went through the turnstiles at Chicago's international trade fair last year. This will be the first aviation exhibition to be held in conjunction with the world famous annual display.

CELEBRATING ITS 35th ANNIVERSARY AS NATION'S OLDEST SCHEDULED AIRLINE, United Air Lines traces its origin to this take-off (above) by Leon Cuddeback, chief pilot for Varney Air Lines, in an open-cockpit Swallow biplane carrying 216 lbs. of air mail. It was on April 6, 1926, at Pasco, Washington, and was Varney Air Lines' inaugural flight from Pasco to Elko, Nevada via Boise. Varney later became a part of United Air Lines.



MEXICAN "HELIPORT" for recent aerial explorations by Erle Stanley Gardner, the writer, was this convenient boulder somewhere in Baja California. Gardner was flown into otherwise inaccessible Mexican areas by Bob Boughton of Hiller Helicopters, using a 305-hp. Hiller 12E. This huge boulder was described as one of the best impromptu landing spots—"often we would let down on ridges so jagged there was hardly a place to step onto in getting out of the Hiller," said Gardner.

—(Hiller Photo.)

NEW 10-WATT, 360-CHANNEL VHF TRANSMITTER, the Dare DTX-10, meets present and planned FAA-TSO requirements and covers 118.0-135.95-mc range. New control head, with switch, is shown at left. DTX-10 weighs less than 10 lbs., features transistor power supply with transient suppressor circuit to protect transistors.

MECHANICAL BIRD CHASER for use near busy airport runways is this Model M-2 Automatic Scare-Away, which creates loud explosion sounds by the ignition of gasses resulting from the combining of calcium carbide and water under pressure. It can also be operated by acetylene. M-2 is distributed by Reed-Joseph Co., Greenville, Miss.

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+ EXPERIENCE + KNOW-HOW

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When you bring your aircraft to BROWN AERO CORP you enjoy peace-of-mind in knowing that you have availed yourself of the finest maintenance to be found anywhere in the nation — and at a competitive price.

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Exide, Westinghouse, Co-Operative Industries, Gabb, Flightex, Grimes, Johns-Manville, Kilgore, Kleenmaster, Pyrotector, Russell and Sonotone.

Broad Warranty in New Service Policy Announced By AEA Aircraft Radio Shops; Carl Fox Elected

At its annual meeting last month in St. Louis, the Aircraft Electronics Association, composed of major aircraft radio shops in the U. S. and Canada, announced adoption of a revolutionary new service policy for aircraft owners. All AEA member shops agreed to provide an unconditional one-year guarantee on all equipment installations by member shops and to process all equipment warranties for the electronics manufacturers.

Under the new plan, aircraft owners will be able to have warranty service performed without charge at any AEA shop in the nation. Previously, the owner had to return to the original point of installation for warranty repairs when malfunctions developed, or had to pay for the repairs made away from home base. All installations performed by AEA-FAA approved shops will carry the official AEA decal bearing the installer's code number and date. A standards committee of the AEA will administer the service policy, set technical standards and provide for standardized billing procedures.

Carl Fox of Associated Radio, Dallas, was elected president of AEA, succeeding D. R. Anderson of Anderson Aircraft Radio of Detroit.

NEWS OF ELECTRONICS EQUIPMENT: Motorola's new M-4 automatic flight control system will be introduced in mid-summer. . . . John Whitehead said RCA will have a DME for the commercial market in mid-1962. . . . New Wilcox general aviation transponder (GAT) looks good, will sell for $1,300.

VECTO INSTRUMENT CORP., Houston, has perfected a new self-contained, solid-state, completely transistorized power supply which converts 28-volt DC to 400-cycle, 115-volt, 3-phase power and also incorporates a battery polarity reversal protection circuit. Designed to provide fail-safe operation of both the gyrosyn compass and the electric gyro horizon, it measures only 6 by 3 inches and weighs 32 ounces. FAA-approved, the Vecto unit is available now.

WILCOX ELECTRIC CO., Kansas City, has signed a long-term exclusive agreement with Marconi's Wireless Telegraph Co., Ltd., of England, to pool the technical resources of the two firms in the field of aviation electronic equipment. Jay V. Wilcox, president, said the immediate effect will be to make available to Wilcox the products and know-how of the British organization. It will more than triple the size of the research and development staff available to Wilcox in extending its range of products. The agreement with Marconi is the second signed by Wilcox with a British firm in 30 days, the first having been signed recently with Ekco Electronics to produce weather radar for commercial and military aircraft.

NEW OFFICERS of the Aircraft Electronics Association are Carl Fox (left, seated) of Associated Radio, Dallas, president; Gene Baker (right, seated) of Robbins Aviation, Pontiac, Mich., vice president; George Matthews (left, standing) of Matthews Electronics, San Antonio, treasurer, and Lynn Hampton (right, standing) of Atlantic Aviation.

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to your training staff
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Students qualify easily for Private exams with the new Sanderson Audio-Visual Course (95% pass on first try). Operators slash costs with this 67% lower-priced training package, using automatically projected, full-color filmstrips and long-play records (not obsolete slides and tape.) Pays for itself on easy-purchase plan as it builds business and profits for you.

You saw it described in "FLYING" (Feb. 1961)
"New Approach in Ground Course Training"

FULL PRIVATE PILOT COURSE:
PRE-FLIGHT FACTS
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TACTAIR TAKES CARE

TACTAIR takes care to see that when you install a Tactair automatic flight system in your airplane it will always give you satisfactory performance. It starts with fine engineering, continual design improvement, stringent quality control — backed convincingly by Tactair's unprecedented One Year Warranty on all components including gyros. It continues with a nation-wide network of service shops where you'll find personnel trained at Tactair-sponsored service clinics and kept up-to-date by Tactair's own field force of service technicians.

For Tactair sales or service, contact any of these authorized Tactair distributors. You'll be assured of the best in automatic flight.

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Operates Pneumatically!

Only Tactair gives you smooth pneumatic operation.
Completely non-electric,
no tubes, no transistors, adds
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Backed by a nation-wide service network.

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HERE'S THE SIGN OF THE FINEST SERVICE FOR YOUR PIPER AIRPLANE

Piper has established a world-wide network of Factory-Certified Service Centers to assure you of the finest service possible for your Piper airplane.
To earn the coveted designation, service organizations must meet rigid requirements, must be properly equipped and staffed by personnel who have attended the intensive service school conducted at the Piper plant.
Dozens of Piper Factory-Certified Service Centers have been established throughout the nation and around the world, and more are being designated to assure convenient and competent Piper service wherever you may wish to fly.

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Municipal Airport
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HOmestead 5-1728
Austin, Texas

CATLIN AVIATION CO.
Will Rogers Field
P. O. Box 2398
MUtual 5-6644
Oklahoma City, Oklahoma

CUMMINGS & GROVES AVIATION, INC.
Houston International Airport, Hangar No. 8
MIssion 4-5593 *and OLive* 4-4351
Houston, Texas

DELAWARE AVIATION CORPORATION
North Philadelphia Airport
HObart 4-1600, *TWX PH* 520
Philadelphia 36, Pennsylvania

EXECUTIVE AIRMOTIVE, INCORPORATED
Stewart Air Park
P. O. Box 70
GArfield 8-3581, *GArfield* 2-7277
Parkersburg, West Virginia

J & J AIRCRAFT, INC.
Sarasota-Bradenton Airport
821 *General Arnold Road*
ELgin 5-6868
Sarasota, Florida

KEN-MAR AIRPARK, INC.
Ken-Mar Airpark
Box 2667, *University Station*
MUrray 3-6589
Wichita, Kansas

RED AIRCRAFT SERVICE, INC.
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COMPARE THESE COMANCHE FEATURES

BIG BAGGAGE COMPARTMENT

20 cubic feet, 200 pound capacity, 20" by 20" door give you amazing carrying ability.

ROOMIEST CABIN

The Comanche has the widest cabin of any plane in its class giving inches more room where it counts. No cramped, crowded feeling. Lots of elbow room. And, oh, so quiet!

PERFECT COMFORT

Reclining seats, head rests, 10 cabin air inlets, high capacity cabin heater provide perfect comfort.

HIGH EFFICIENCY WING

Provides quick take-off, excellent climb, fast cruising speed on low power . . . all-around efficiency proven by three non-stop world distance records.

ALL-MOVING STABILATOR

Fighter-type all-moving stabilator reduces drag by 25%, is more effective in all speed ranges.

LYCOMING POWER

Smooth, dependable Lycoming power with new "shower of sparks" magnetos for the easiest, surest starting. Your choice of 180 or 250 hp.

NEW 90-GALLON FUEL CAPACITY

Two optional 15-gallon internal wing tanks plus Comanche 250's standard 60-gallon capacity give up to 12 hours (1600 mile) range!

NEW DUAL BRAKING SYSTEM

New toe brakes on left side, plus single center hand brake usable by either front seat occupant, is exclusive feature.

WIDE, RUGGED LANDING GEAR

Comanche's low-slung design, with lowest CG, permits use of short, rugged struts that will take grueling punishment.

BIG NOSE WHEEL

The Comanche's nose wheel's as big as the main wheels for safer operations in rough, soft fields.

EXCLUSIVE PIPER AUTO-CONTROL

AutoFlite Comanche has exclusive Piper Auto-Control as standard equipment, holds course, changes course, makes turns automatically.

NEW ALTI-MATIC PILOT

The last word in three directional automatic flight, lets you dial in heading and altitude, gives you effortless "magic-carpet" flight.

NEW INSTRUMENT PANEL

Everything's where you want it. Full gyro panel on left, radios in center with room for complete 2½ system. Best panel yet!

MASSIVE, QUALITY CONSTRUCTION

Look at the Comanche's deep 12 inch spar, check construction throughout and you'll see why the Comanche has such a magnificent structural safety record.

YOU'LL SEE FOR YOURSELF WHY THE COMANCHE'S THE BEST BUY FOR YOUR MONEY

$16,445 WILL PUT YOU IN A COMANCHE!

In the same price range as many fixed gear airplanes, the Comanche 180 cruises 160 mph, gives you modern low wing design, fuel efficiency that'll save enough to pay your hangar rent, plus superior comfort and countless other features.

AND SO BEAUTIFUL!

Check the Comanche — 180 or 250 — fly it, compare it. It's the one for you. See your Piper dealer or write for Comanche brochure.

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New Business In The Hangar

12th Annual National Maintenance and Operations Meeting at Reading to Draw Record Attendance June 2-3

Record attendance is expected by Alfred M. (Sime) Bertolet, president of Reading Aviation Service, Inc., for his firm's 12th annual National Maintenance and Operations Meeting on June 2-3 at Municipal Airport, Reading, Pennsylvania. This annual get-together has become a major event for thousands of aircraft owners, pilots, fixed-base operators and equipment exhibitors.

In competition for trophies and cash awards, aircraft owners will enter their airplanes in judging to select outstanding aircraft in each of four categories in six different aircraft classes. Selection of the "flagship of the U. S. industrial fleet" will climax the competition.

Aircraft manufacturers who will participate include Lockheed with its new Jetstar, Fairchild with its F-27, Grumman with its Gulfstream, Aero Commander with more details on its new twin-jet design, and Piper. Equipment manufacturers will display new 1961 developments including radio and electronics.

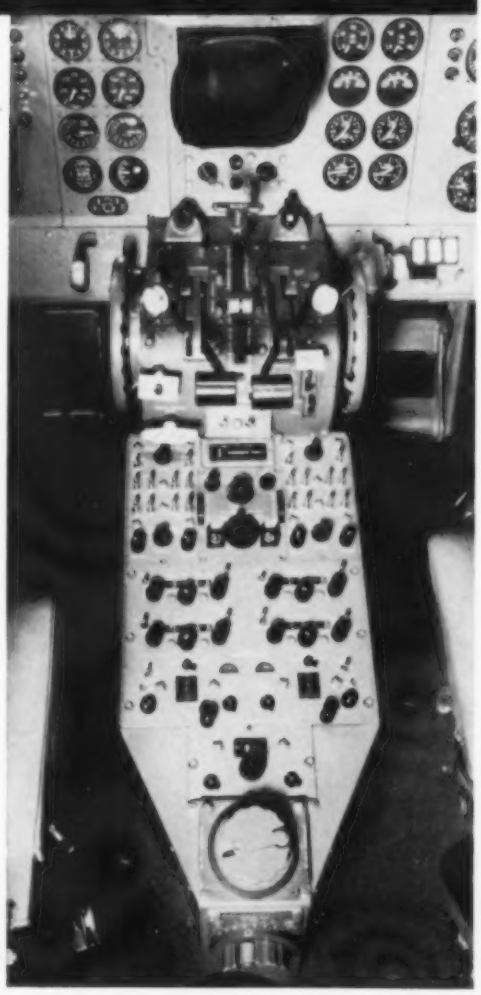
Symposiums will include discussions of FAA regulations, flight safety, meteorology, turbine engines, Butler Aviation's Vector Analog Computer, and the National Pilots Association will provide a talk and discussions covering single-engine instrument flight and flight in high-density traffic areas. Bell Aero Systems will give a graphic demonstration of a new automatic landing system. United Air Lines will conduct a radar school for those attending. Hotel reservations may be made through Reading Aviation Service, P. O. Box 1201, Reading, Pa.

AIRESEARCH AVIATION SERVICE, Los Angeles International Airport, has Hercules Powder's Convair 240 for custom business interior, cockpit refurbishing, exterior painting and installation of Sperry A-12 autopilot, Bendix RDR-1D radar, Sperry single integrated instrument system, No. 2 VHF communication system, dual glideslopes, ground heater and auxiliary power unit. With the airplane is B. Owen Mansfield, manager of aviation. . . . Will Smith took delivery of the Martin Company's No. 2 Grumman Gulfstream following installation of executive interior, Sperry SP-20 autopilot, complete Bendix weather radar and dual nav-com package. . . . World Airways brought in a DC-6A for convertible interior, navigator's station, auxiliary fuel and oil, and installation of windows and emergency exits. . . . The new IBM Fairchild F-27 arrived for custom interior, super soundproofing and radio-electronics installation. . . . Phillips Petroleum sent its Convair 240 for double engine change, pressurization components overhaul and minor interior refurbishing. W. R. Lusbey, as-

FIRST COLLINS DOPPLER RADAR navigation system in a Vickers Viscount was installed recently by AiResearch Aviation Service at Los Angeles in Tony Zuma's 4-engine Tennessee Gas Transmission Viscount, which is used for long-range flights to South America. Picture shows antenna as mounted beneath tail of the Viscount.

COMPARE

Custom Installations



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How Clean Is Your Fuel?

Even the most forgiving airplane can turn nasty if its gasoline diet gets contaminated with water, dirt particles and other non-combustibles. Perhaps you know and observe the precautions necessary to avoid fuel contamination in your plane. But, in the interest of safety, let's review the basics:

DRAIN FUEL SUMPS. Notice that plural: sumps. On your pre-flight, it pays to drain a few ounces, not only from the main gascolator, but from the wing tanks themselves. This gets rid of moisture and sediment that accumulates on the bottom of the tanks and does *not* get cleared out through the gascolator. (Quick-drains are now available as an accessory for most light planes that do not already have them.)

TOP YOUR TANKS. Make sure those tanks get filled *before* you put your plane away for the night. This will prevent condensation from forming on the inside walls of your tanks—the same type of moisture you often see on the *outside* of your plane early in the morning.

One more tip: use all your tanks. Avoid letting gasoline "sit" for month after month in an auxiliary tank. Keep your fuel "fresh."

Follow these rules and you'll help keep your plane's gasoline diet pure and healthy. Incidentally, you might be interested in knowing something about the systems your Gulf aviation dealer uses to insure delivery of absolutely clean Gulf aviation gasoline into your plane.

Notice another important plural: systems. That's because your Gulf aviation dealer has what amounts to *three systems* working in combination to keep the fuel pure. Here's how they operate:

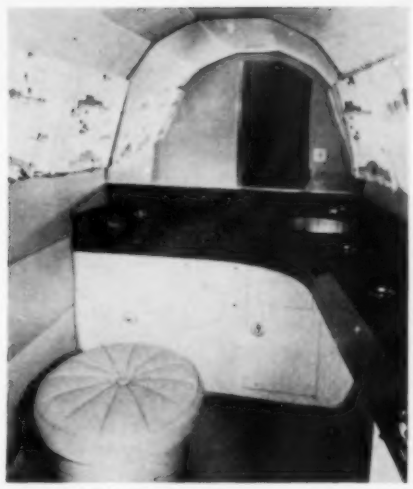
WATER-LOCKING FOOT VALVE. This is a special safety device installed on the suction pipe in every Gulf aviation gasoline storage tank. The water-locking foot valve floats in water but not in gasoline. So, if any water were to get into the gasoline storage tank, bang! . . . the water-locking foot valve would immediately close off the suction pipe and nothing could be pumped until that water was drained off.

MICRONIC FILTRATION. This is Gulf's filtering system at the pump, and it's so effective it will screen out any solid particle down to 10 microns in size. And that's pretty small, because a micron is 39 *millionths* of an inch.

100 MESH NOZZLE SCREEN. Just in case anything should flake off inside the hose, there's a very fine mesh screen right at the nozzle. So, up to the very point at which Gulf aviation gasoline is delivered into your plane, it's being filtered, cleaned, purified.

Reassuring, too, to know that Gulf aviation gasoline is the finest quality you can buy, whether it be 80/87, 91/98 or 100/130. The same applies to Gulf's two aviation oils—Gulfpride Aviation Oil Series D, the detergent oil, and Gulf Aircraft Engine Oil, the straight mineral oil. So taxi up to the Gulf sign for clean, high quality aviation products.

GULF
AVIATION PRODUCTS



LIGHTWEIGHT LODESTAR CONVERSIONS FOR GOODYEAR RUBBER FLEET provided close to half a ton of additional payload, according to Ray Beck, general manager of Inter-America Aviation Modification Center at Ft. Worth. First of the Lodestars arrived with an empty weight of 14,580 lbs. and this was reduced to 13,621 lbs. Photos show new interior, galley and lavatory-toilet. Generco flooring, Sonotone batteries, Plexiglas mirrors, specially-made Goodyear seat cushioning and other features were used.

sistant aviation manager, was with it. . . . Carl Hallmark brought in his KPF Electric Beech for recover of control surfaces, exterior painting and interior refurbishing. . . . Bud Dyas and Bob Donnell brought in the Martin Company's Convair 440 for exterior painting.

SOUTHERN AIRWAYS of Florida has opened a radio shop at Orlando Municipal Airport with Woodrow F. Dunlap as manager. Southern is Beech distributor and the shop will handle all types of radio work. Dunlap was for nine years foreman of the radio shop at the Southern Airways School, Bainbridge, Georgia.

REMMERT-WERNER, INC., Lambert Field, St. Louis, had Fred Hotson's Ontario Paper Super-92 DC-3 for landing gear and prop overhaul and installation of a new interior. . . . Raoul Castro's International Harvester DC-3 was in for an engine change and other work. . . . Potter Smith's Twin-Bonanza was in for installation of fresh engines, new interior, ARC omni, ARC-21 ADF and custom panel. . . . Collins Radio's Convair, with Harvey Hop and Roger Dice, had two fresh props installed on exchange. . . . Bob Fash's Site Oil DC-3 had an engine replacement. . . . An engine change was performed on the LeTourneau-Westinghouse B-23 flown by Ernie Valdez and Homer Nebergall. . . . Larry Lyons took his American Brake Shoe DC-3 to Toledo for engine change and other work.

DALLAS AERO SERVICE, Love Field, Dallas, had Don McDonald's Burroughs Corp. Learstar for interior, installation of Bendix RDR-1D radar and repaint. The Burroughs Lodestar was recently in for new interior, rewire, angle of incidence change, radio installation and exterior paint. . . . Double engine change was performed on a Phillips Petroleum DC-3. . . . J. W. Benson's Cardinal Drilling Lodestar was in for an engine change. . . . Bob Dodson's British American Oil Lodestar was in for 1,000-hr. inspection, tank reseal and landing gear overhaul. . . . A Central Airlines DC-3 was in for 12,000-hr. inspection. . . . Two U. S. Army de Havilland Otters were in for Arctic paint jobs. . . . Engine changes were made on Wally Tingsley's Shell Oil Dove, George May's D. Harold Byrd Lodestar, R. H. Fulton's E18 Beech and John Clark's Graridge Corp. Aero Commander. . . . Radio installation and licensing were performed on the H. H. Coffield Beech Twin. . . . Buck Anderson's Waterman Steamship Learstar was in for exterior paint and tank repairs. . . . Power egg was installed on a Superior Airlines Dove.

NATIONAL AERONAUTICAL SERVICES ASSOCIATION last month elected Henry I. McGee, president of Dallas Airmotive, Inc., as its new president; Mrs. Isabel McKay, president of Embry-Riddle Aeronautical Institute, as vice president, and Harry S. Baer, Jr., secretary-treasurer. Officers and directors are pictured above. Seated, left to right, are Baer, Frank W. Hulse, past president; McGee, Mrs. McKay, and Ramsay D. Potts, Jr. Standing, left to right, are George L. Carter, R. M. Tonks, B. E. Howard, E. M. Anderson, E. F. Buehring and Winston Castleberry. Not shown are R. J. Osborn and Clarence E. Page. —(Del Ankers Photo.)

GULF OIL CORP. last month began construction on a new 19,400-sq. ft. hangar on a 2.17-acre tract at Houston International Airport. On the east side of the airport, the new full-cantilever steel and masonry hangar will have a 162-ft. span with 32-ft.-high doors.

EXECUTIVE AIRCRAFT SERVICE, Redbird Airport, Dallas, was back in business on May 1 after a major hangar fire in April destroyed Steve Germick's Houston-based Texaco DC-3 when fuel was accidentally dumped on a light. It also destroyed the EAS Piper Apache and damaged other aircraft. Forty per cent of the hangar is being rebuilt.

PIEDMONT AVIATION, Winston-Salem, installed a new interior in Herb Drew's R. J. Reynolds Tobacco DC-3. . . . New headliner and curtains were installed in C. W. Nelms' Campbell Soup DC-3. . . .

SOUTHWEST AIRMOTIVE, Love Field, Dallas, has been selected as permanent engine overhaul base for Surinam Airways of Paramaribo, Surinam. It has already sent its first engines.

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Oklahoma City, Oklahoma

ALAMO AVIATION, INC.
Municipal Airport
San Antonio, Texas

ATLANTIC AVIATION CORP.
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- Logan International Airport
  East Boston, Massachusetts
- International Airport
  Philadelphia, Pennsylvania
- New Castle County Airport
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Houston, Texas — MI 4-5595

CURREY SANDERS AIRCRAFT CO., INC.
Downtown Municipal Airport
Shreveport, Louisiana

CUTTER-CARR FLYING SERVICE, INC.
West Mesa Airport
Albuquerque, New Mexico

ELLIOTT FLYING SERVICE
- Municipal Airport, Des Moines, Iowa
- Municipal Airport, Davenport, Iowa

GRAY AIRCRAFT SVC. CO., INC.
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Love Field, Dallas, Texas

HARTZOG AVIATION
Greater Rockford Airport
Rockford, Illinois

THE NORMAN LARSON CO.
PLANESERVCE, INC. (Service Division)
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TEXAS AVIATION CORPORATION
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DUAL BENDIX VHF COMMUNICATIONS SYSTEMS will be used in New York Airways' new Boeing-Vertol V-107 twin-turbine helicopter airliners. Installation of Bendix RA-21 receivers and TA-21A transmitters will be made at the Boeing-Vertol plant at Morton, Pa.

ZEKE EVANS, well-known in Southwest aircraft sales, has formed a new firm, Riteway Aircraft Sales, Inc., dealing in used business planes and with sales offices at Riteway Airmotive, Addison Airport, Dallas.

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NEW COLLINS 344D-2 OMNI INDICATOR is transistorized, weighs 2.6 lbs. in a 3-in. case, cost $1,185 and provides VOR and localizer indicator, to-from information, reciprocal bearing, left-right VOR, omni course selection, glideslope needle and warning flags.

Evans is president and Mel H. Teter is vice president.

HOWARD AERO, International Airport, San Antonio, delivered Robert Vinson's new International Minerals and Chemical Super Ventura, which will be based at Midway Airport in Chicago. . . . Wes Stetson's Pacific Lumber Super Ventura was in for new Howard drag strut anchor casting. . . . One of Firestone Tire's Super Venturas was repainted. . . . Bill Burke brought in Pure Oil's PV-1 for major repairs and engine change. . . . Goodyear six-spot brakes were installed on Bruce McGraw's Quintana Petroleum's PV-2. . . . Landing gear doors were installed on Gordon Bennett's Weatherhead Company Lodestar. . . . Landing gear doors, picture windows and interior were installed on Bill Close's Consolidated Western Steel Lodestar. . . . Charlie Viosca brought in Anderson-Dunham's Lodestar for Howard 250 conversion. . . . Charlie Baudoux brought in the S. B. Burnett Estate Lodestar for new paint. . . . Pat Golden's Rockwell Manufacturing Convair 440 was in for new paint job and interior modifications.

NEW BEECH FACILITY

(Continued from page 27)

Alaska; Pacific Aircraft Sales, Inc., and Portland Aircraft. In addition to Silas King, other officers of Flightcraft include C. D. Weyerhaeuser, vice president, and C. E. (Chuck) Miller, secretary-treasurer. Besides aircraft sales, Flightcraft offers complete airframe, engine, accessory and electronic maintenance, repair and overhaul. Its Oregon Airmotive Division offers instrument sales, overhaul and repair and Executive Flight Services specializes in pilot services, charter flying, aircraft rentals and flight training.

'AUTOMATIC' COMMANDER

(Continued from page 46)

21A ADF's, an ARC RMI, 20-channe ARC glideslope receiver, 3-light ARC marker beacon receiver, Hunter tru airspeed and custom panels. Tota

power drain is 8 amps, so that either of the 680F's 100-amp generators will operate all equipment, including radar. A dual oxygen system provides 8 hrs. of oxygen for 6 people at 15,000 ft. Radome on nose (left) is painted.

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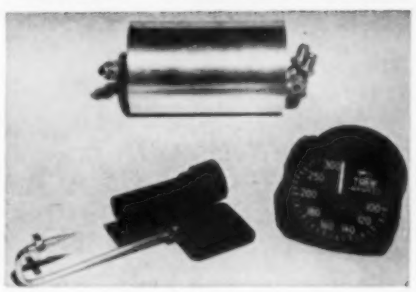

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NEW SUN-AIR T-5-DA five-channel transceiver has 35-watt transmitter output, is available in 14 or 28 volts, weighs 9 lbs., measures 5 ins. high by 6 ins. wide by 12⅛ ins. deep and has a new transistorized power supply. It has edged-lighted panel and is crystal controlled.

AIRCRAFT RADIO CORP., Boonton, N. J., recently presented certificates of qualification to 30 men who completed the firm's course in maintenance of the new ARC AN/ARN 30D (civilian 15F) omnu system, AN/ARN 59 (Type 21A) ADF and B-18A RMI converter, all of which are standard on the Army's newest aircraft.

READING AVIATION SERVICE, Municipal Airport, Reading, Pa., installed a new interior and repainted an Army Aero Commander. . . . A Federal Aviation Agency contract for painting 4 DC-3's was completed. . . . Dual controls were installed in Don Taylor's Taylor Aviation Twin-Bonanza, which was also repainted. . . . Phase 1 inspection and repairs were performed on Otto Pobanz' Federated Department Stores Martin 404. . . . A Reading Airways de Havilland Dove received spar modifications, relicense, Ceconite control surfaces, engine and accessory overhaul, and airstair door modification.

FOWLER AERONAUTICAL SERVICE, Burbank, has opened a flight operation branch known as Fowler Aviation at Van Nuys Airport. Between both offices, services range from Link-C8 training, executive aircraft recurrent training, flight proficiency, private to ATR, operation maintenance manuals, airline pilots ground school, pilot training ground school, sales, service, maintenance, lease, charter and rental.

PIEDMONT AVIATION's General Aviation Division, Winston-Salem, has named Robert V. Ford as assistant to R. S. Northington, vice president. Ford was formerly an engineering test pilot for Fairchild and was with FAA for ten years doing engineering and test work.

AIR CARRIER ENGINE SERVICE, Miami, Florida, has developed the "Bergstrom engine oil purifier" for aircraft engines which uses the

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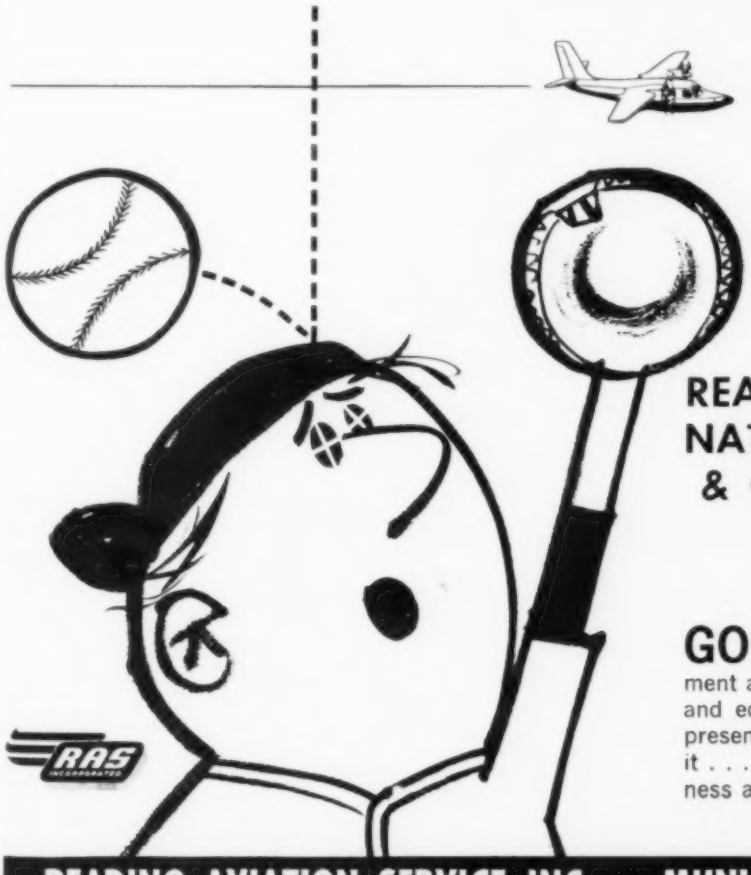

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BIL

Billings, Montana, is a community of some 40,000. Vast irrigated agricultural areas in the Yellowstone and Musselshell Valleys provide crops for its extensive Beet Sugar refineries. Crude oil refining and livestock are also active industries.

Billings Municipal, largest airport in the state, is serviced by scheduled flights of Northwest and Orient and accommodates the some 200 privately owned aircraft based in the area.

Wherever there is air activity, USAIG is the preferred insurance. Be sure that you have this dependable protection. Coverage is conveniently arranged through your own agent or broker.

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principle of centrifugal force to separate and remove solid oil impurities. William Bergstrom, president, said that, in over 500 hrs. of tests, it averaged about 3 lbs. of sludge and foreign matter for each 100 hours of operation of R-2800 engines. He said he is now obtaining STC's for all major aircraft. Prototype models are already installed on C-46, Convair 340 and Douglas DC-6 aircraft. The unit can be removed, cleaned and replaced in one man-hour. It weighs 29 lbs. completely filled with oil, is mounted in the oil-out line, and operates on a rotary basis, which produces a decrease in back pressure between the engine scavenge system and the oil cooler.

COLLINS RADIO COMPANY has received an order for 138 DME (distance measuring equipment) sets, costing over $1,000,000, from United Air Lines. United will equip all of its jet aircraft with DME by Dec. 1.

Beech Mobile Training School On Tour of Distributors and Dealers

For the fourth consecutive year, Beech Aircraft Corporation is touring distributor-dealer facilities with its factory-conducted mobile training school during May-July.

The Beech school, only one of its kind in the business aviation industry, updates service personnel in mechanical techniques, thus improving service offered by distributors and dealers. A factory expert on all phases of servicing Beech and vendor-designed parts conducts the two-day sessions of training films, charts, demonstrations using cutaway parts and working mock-ups at all participating locations. A separate course is given on each of Beech's seven executive aircraft models — the Super 18, Queen Air, Twin-Bonanza, Baron, Travel Air, Bonanza and Debonair.

"By learning the latest service techniques, the mechanic in the field is able to do a better job for his customers," said Del Spillman, Beech chief commercial service engineer. "It is the customer who ultimately benefits from this training program, for his service work is provided faster and more economically."

J. N. Colvin, director of the 1961 mobile training school, said in three previous years the school has traveled 61,000 miles, trained over 1,000 men and operated more than 22,000 student training hours.

HANDY LEAR L-2 CONTROLLER installation by Bob Saxon, electronics superintendent for Brown Aero at Dallas, uses arm rest in a Beech Travel Air. Arm rest is adjustable to any comfortable position and autopilot controls are out of the way when the arm rest is "down and locked."

—(Brown Aero Photo by Tom W. Collins.)

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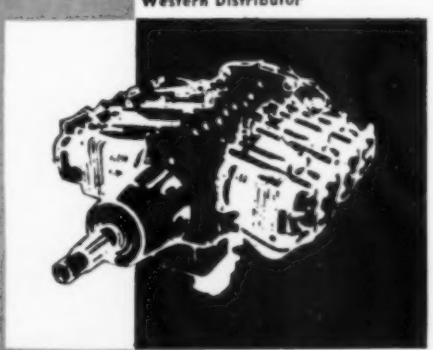

JOHN A. BAUMANN
General Manager

JUST AMONG OURSELVES

(Continued from page 16)

patrons, was attending a meeting in New York. When he heard about the hometown airport manager being in hot water, Amon hopped an airliner, worked the case out in a couple of hours, and flew back to his meeting in New York.

Bill could write a best-seller recalling his fabulous experiences, especially in the early days. Trouble is, a lot of readers simply wouldn't believe some of the stories.

At the Fuller Appreciation Night Banquet in the Texas Hotel last month, Bill sat at a spotlighted table right in front of the head table to hear tributes from the great and near-great who remembered him "way back when." At the close of the ceremonies, Chairman Roy Naugle of Humble Oil Company called on Bill's charming wife, Jackie, to introduce her husband as the closing item on the agenda. She stepped briskly to the mike and made the shortest speech of the evening, saying, "I give you my husband, Bill Fuller."

Mrs. Fuller may or may not know it but she gave her husband to aviation and to Fort Worth many years ago when they arrived from Kelly Field back in 1927. Friends from all over the world who have heard of Bill's retirement are sending in their good wishes by wire and letter. Most of them, of course, are from old-timers saying, "Happy Landings, Bill."

FIRST STEEL TOWER BUILT BY LIGHT COPTER is this 200-ft. tower for a Pacific Power and Light transmission line across ocean shipping channels in Coos Bay, Oregon. A barge crane was used to erect the lower 111 ft. of the tower on concrete footings but a 305-hp. Hiller 12E light utility helicopter was used to lift onto the tower pre-built sections weighing 500 to 1,200 lbs. each. The Hiller 12E was only 4.5 hrs. in airlifting all of the half-ton sections from shore onto the last 93 ft. of the tower. Wes Lamatta was pilot of the Hiller, which was operated on the job by Columbia Helicopters.

—(Hiller Photo.)

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